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ABSTRACT

The revised guide, prepared to supplement the existing curriculum, suggests activities related to the three student goals: (1) to develop an awareness of who he/she is, and, through effective decision making, what he/she can become; (2) to become aware of the interrelationships of society with his/her school, community, family, work, and leisure; and (3) to become aware of the many facets of the world of work. A definition of career education and an outline of 10 junior high career education concepts open the document and are followed by steps for study. Suggested activities and ideas are presented for the manufacturing area with related units on mathematics, social studies, science, and general applications. The units provide activities related to manufacturing; office management; advertising; and the baking, motor vehicle, apparel, and paper industries. Various units provide prefield trip and postfield trip information and activities. Objectives, teaching procedures, and resource materials are presented for each unit. The document concludes with a discussion of field trips and resource persons and provides a 12-page list of local field trip sites and guest speakers. (BP)

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CAREER EDUCATION

Learning with a Purpose

JUNIOR HIGH 7-9 VOL. 3

- Manufacturing/Mathematics
- Manufacturing/Social Studies
- Manufacturing/Science
- Manufacturing/General
- Field Trip Sites and Guest Speakers

CE006384

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CAREER EDUCATION PROJECT
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During 1974 and 1975 in career education workshops, a group of teachers from three counties (Saline, Pettis and Benton) in central Missouri developed these activity guides. Special appreciation is expressed to all those individuals who participated in this program.

This booklet is only one step in the direction of developing career education curriculum. It has been revised and will continue to be reviewed and tested as an instrument for use as infusion of career education activities in middle/junior high levels of school.

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FOREWORD

This guide has been prepared with the hope that the following activities will be useful in infusing career education programs in an existing curriculum. The activities presented relate to the three general career education goals set up by the workshop participants for the junior high/middle school level. They are:

For the student

(1) to develop an awareness of who he/she is and through effective decision-making what he/she can become;

(2) to become aware of the interrelationships of society with his/her school, community, family, work, and leisure;

(3) to become aware of the many facets of the world of work.

All objectives, goals and activities included in this guide were developed in relation to these general goals.

The activities which follow are offered as suggestions for supplementing activities in career education programs. This guide's purpose is not to tell the individual instructor what he or she must do. Rather the guide simply offers an example of what the teacher might do. Exactly how the instructor does this will depend upon the interests, talents, abilities and ingenuity of the specific teacher, the students, and the resources available.

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CAREER EDUCATION
DEFINITION AND DESCRIPTION

There has been a saying used for many years that education is preparation for life. At different points in our nation's history, this point has been overlooked or overshadowed by other interests. It would seem that career education is purposely trying to once again provide this type of education.

Career development, which is a lifelong process, begins at a very early age. Even the pre-schooler does role playing. As a child enters formal education, he should continue a step known as the Awareness Stage. This usually covers pre-school through grade six. The second is the Exploration Stage, which covers the middle or junior high level. The third is the Preparation Stage. This covers a time period as long as necessary for the individual to acquire the skills and knowledge needed to enter and progress through his occupational career.

The educational climate today indicates a growing awareness on the part of increasing numbers of people that living in the most advantageous vocational niche is one of the most critical of cultural aspects to man and society. This is the climate that has given impetus to the concept of career development. The great scientific and technical advances in our country have brought about the age of automation--an age in which every person is a specialist. This is true of both the college-educated person and the worker who terminates his education with graduation from high school. Virtually every person, man or woman, college student or not, is involved in earning a living. Education, then, should provide meaningful, significant experiences designed to equip the individual for work in which he will be successful and properly challenged in accordance with his specific aptitudes, interests and total personality. In the case of these individuals who will eventually graduate from college, the function of the school is an interim step. For many others, high school may be the only formal preparation for a lifetime of work and living.

Career education says: Each individual should be led to develop his own work values after becoming fully aware of the alternatives and the implications, rather than have them dictated.

"Career" itself is a confusing term. To us, it refers to the sum total of all the work done by a person in his lifetime. It differs from an occupation in that an occupation is a component of a career at a point in time.

Career education, then, attempts to help students understand the work ethics imposed by society; develops their work values based on their own personal interests in full awareness of society's demands; helps them become aware of the world of work and its values, prepares for, and ultimately begins and pursues a career, including the possibility of occupational change and the hope for productive use of leisure during that career.

PHILOSOPHY

The interests of the junior high school revolve around the home, school and peer group. Through study of society, self and the world of work, these students begin to see themselves as an integral part of a working whole. Career education brings relativity to the classroom as it seeks to give the students a firm foundation in the basic skills of education.

CONCEPTS

1. Explore and become aware of the many kinds of careers available.
2. Realistically appraise career selections according to his present abilities and interests.
3. Understand that each person is an individual with different capabilities, needs, interests and values.
4. Recognize the value and interdependence of each job choice.
5. Realize that work in school is directly related to future job success.
6. Realize the satisfaction that should be inherent in job choices and in leisure time pursuits.
7. Realize that the cultural and social attitudes of his heritage will not necessarily limit his job choice.
8. Realize that the world is in constant change just as his own abilities, interests and aspirations change and will, therefore, explore many occupational possibilities during his maturation process.
9. Appreciate the responsibility he has to use his potential to contribute to the work force and to wisely use his leisure time to better the standards of cultural and recreational pursuits of his society.
10. Career preparation is not limited to a study for a specific career but necessarily includes all areas of study that broaden his mind and expand reasoning power so that he can make suitable choices in all phases of adult life.

STEPS FOR INTEGRATING CAREER EDUCATION

CONCEPTS INTO UNITS OF STUDY

Select a unit that you will be teaching from your content area.

If necessary, further divide the unit into sub-units of 5 to 10 days duration.

Before a teacher can integrate career education into his content, he must first know the teaching purpose of his unit or sub-unit. Write in a declarative sentence what you want your students to know after you finish teaching the unit or sub-unit. This is the major idea.

Select a career objective from any of the five areas that you could incorporate into the unit mentioned above. State it as a major idea so that it can be combined with the content major idea.

Now you may incorporate the career education ideas into your unit in one of three ways.

a. Rewrite the content major idea to include the career education objective. If you do this, then your teaching unit will be primarily career oriented.

b. Keep your original content major idea. All components may not have career implications. If you have listed four components, three may be strictly content oriented. The fourth component may be the only one that has career implications. If you do this, you will have at least one lesson devoted to career education.

c. Your major idea and your components may have no stated implications. You will bring out the career implications in the activities you use for each lesson or component.

List the components that you will need to teach in order to get your major idea across to your students. A component is a word or phrase which will develop into a lesson.

Take each component and write a learning objective for it. The learning objective should tell what you expect the student to be able to do when he has finished the lesson.

For each component or lesson, list the learning activities that you would have your children do.

MANUFACTURING UNIT/JUNIOR HIGH MATHEMATICS

INTRODUCTION

Manufacturing is the activity around which our nation's economy revolves. From factories flow the goods that have provided a standard of living unmatched elsewhere in the world. The products of the manufacturing industries range in complexity from a simple plastic toy to an intricate electronic computer and in size from miniature electronic components to gigantic nuclear powered aircraft carriers. Many diverse processes are carried out in manufacturing. Workers refine ores and petroleum, process foods and chemicals, print books and newspapers, spin and weave textiles, fabricate clothing and footwear, and produce the thousands of products needed for our personal and national benefit. Our society as we know it today could not have reached its present level of prosperity without the goods provided by the manufacturing industries. (The University Society Encyclopedia)

This unit of information may be used to teach about manufacturing, office management, advertising, the baking industry, the motor vehicle industry, an apparel industry, the paper and pulp industry. There are many subsidiary units which could be formed from this unit.

This unit may be used as pre-field trip and post-field trip information.

This unit may easily be adapted to the school courses in English, social studies, science, industrial arts, and mathematics.

RESOURCES

Film, "Quality and Cost," 16mm, color, sound, 15 min. (1963). Story of the ever present problem of manufacturing quality and cost. Shows how to produce quality at minimum costs and deals primarily with the use of special purpose production machine tools. Pay return postage, book one month in advance. Kearney and Trecker Corp., Advertising Dept., 11000 Theodore Trecker Way, Milwaukee, WI 53214.

Filmstrip and tape, "Working in Manufacturing" X335-G, KTCE24, Eyegate, Education for Occupations, Career Education Project, State Fair Community College, Sedalia, MO.

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) General

Objective(s): Student will become aware of: where raw materials are obtained and their costs; the component parts which make up a factory-made product; the types of positions of work within a factory; what makes prices high or low in a store; and see workers in the manufacturing world of work as they perform their duties.

Procude: PRE-FIELD TRIP	**Resources and Materials:**
Discuss the raw materials used in the manufacture of the products and the prices of the raw materials along with discussing the quantity needed to produce items.	
Discuss the individual parts of the product and how it would be made.	Invite workers from local factory to speak. Invite managers from local factory to speak.
Discuss the types of clerical and manual work which are involved in a manufacturing plant. Many of these positions discussed will be positions which the students will know a little about because of parents or relatives working in a manufacturing plant. From these discussions, many questions will probably arise about what a person does and these discussions should bring out how math, English, history, etc. are used.	
Discuss where a product goes from the factory and why the prices are established as they are in a store.	Invite wholesalers, retailers, or truckers for explanations of their part in this manufacturing process.
From these various discussions and research and work within the classroom, the students should be aware of various parts of manufacturing and they should have many questions which may be asked while on a field trip to a manufacturing plant.	Field trip to a local factory

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) General

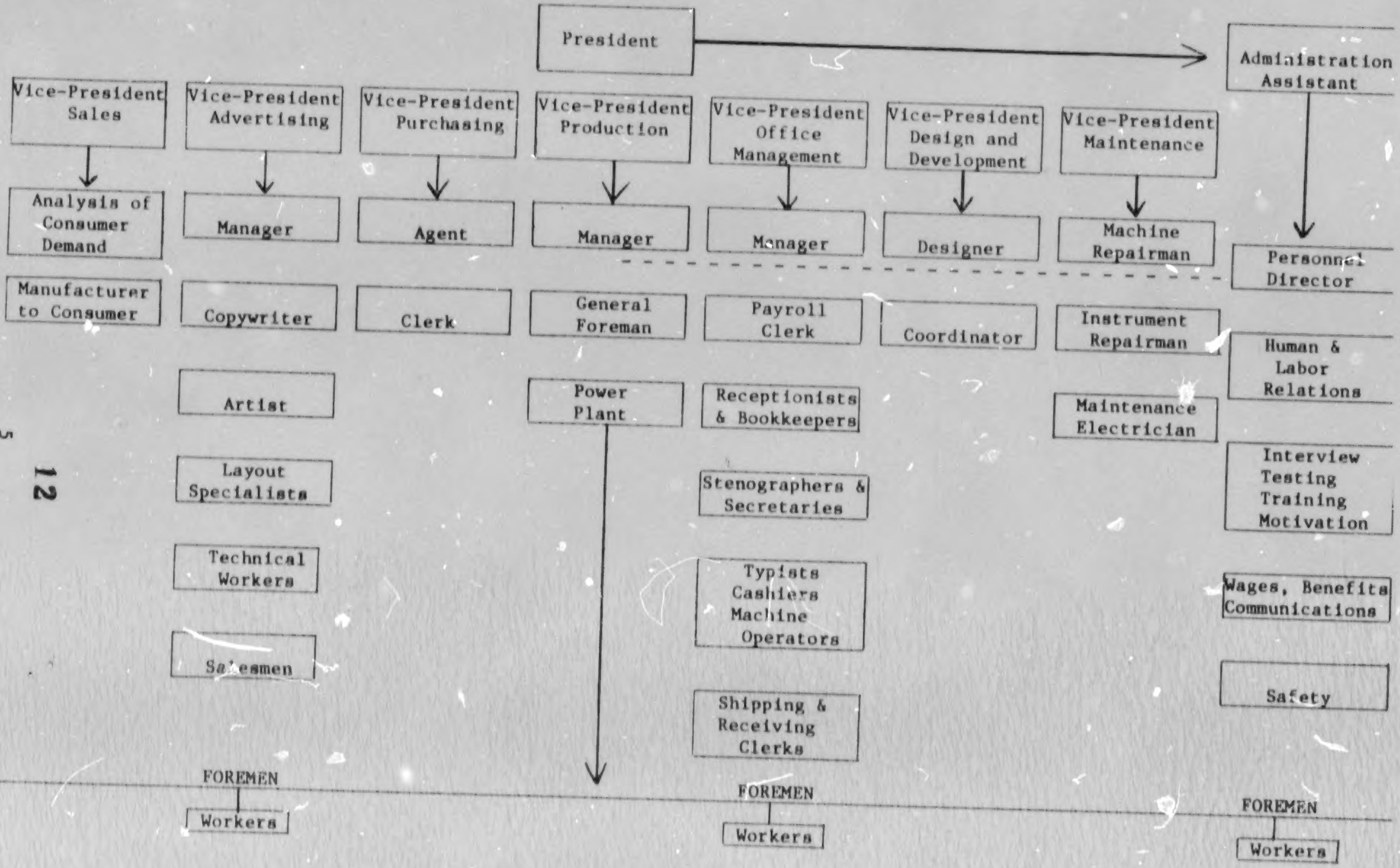
Objective(s): Students will become more aware of the type of work of personnel in a factory.

Procedure:	**Resources and Materials:**
POST-FIELD TRIP After having actually seen these workers in operation, the students could divide into groups of their interest and set up a simulated factory. Various groups could actually go through some of the processes which were seen in the factory, such as filling out forms, etc. Other groups could discuss math, English, social studies, science, etc. related problems and could make up and work out some of these problems. Pictures and bulletin boards may be made from actually having seen a factory in operation.	

Evaluation:

Comments on use:

Hazel Hudson


President
Administration Assistant
Vice-President Sales
Analysis of Consumer Demand
Manufacturer to Consumer
Vice-President Advertising
Manager
Copywriter
Artist
Layout Specialists
Technical Workers
Salesmen
Vice-President Purchasing
Agent
Clerk
Vice-President Production
Manager
General Foreman
Power Plant
Vice-President Office Management
Manager
Payroll Clerk
Receptionists & Bookkeepers
Stenographers & Secretaries
Typists Cashiers Machine Operators
Shipping & Receiving Clerks
Vice-President Design and Development
Designer
Coordinator
Vice-President Maintenance
Machine Repairman
Instrument Repairman
Maintenance Electrician
Personnel Director
Human & Labor Relations
Interview Testing Training Motivation
Wages, Benefits Communications
Safety
FOREMEN
Workers
FOREMEN
Workers
FOREMEN
Workers

Hazel Hudson

VICE-PRESIDENT SALES

Type of work

Covers one state and usually more than one state selling items.
Takes orders for merchandise--writes up orders on two or more carbons.
Analyzes consumer demand to find out what type of product the consumer wants when he wants it and where he wants it and what he will pay for it.
Needs to know the history of each item he is selling.
Suggest remedies for sales problems which retailers are having.
Informs the buyer when to expect delivery and makes shipping arrangements.

Three types of selling

Manufacturer to wholesaler, to retailer, to consumer
Manufacturer to retailer to consumer
Manufacturer to consumer

Personal information concerning the sales agent.

Works on a commission which is determined according to wholesale prices of the merchandise and the volume of sales. Usually paid at end of a month. Are not reimbursed for traveling.
Away from home often, travel in all kinds of weather, carries samples.
Working hours must meet needs of customer.

RESOURCES

Write to: New York Life Insurance Company, Career Information Service, Box 51, Madison Square Station, New York, NY 10010; National Association of Wholesalers, Inc., 1725 K Street, NW, Washington, DC 20006; The Council on Opportunities in Selling, Inc., 630 Third Avenue, New York, NY 10017

Movies: "Salesmanship: Art or Science?" 16mm, color, sound, 25 min., 10th grade and above. Pay return postage.
"A Little Time for Henry," 16mm, color, sound, 17 min., 10th grade and above. Pay return postage. Modern Talking Picture Service, 1212 Ave. of the Americas, New York, NY 10036.
"Report to Consumers," (4564) 16mm, sound, color, 28 min. Documentary on retailing. Modern Talking Picture Service.

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics

Objective(s): The student will be able to use a scale of miles to measure distance. The student will be able to map out a travel route then figure the miles. The student will be able to use such things as unit price, number of units to figure the total cost of items which might be ordered from a factory. The student will be able to add totals to obtain a final total for a shipping order. The student will be able to figure how much time is involved from a calendar. The student will become aware that something must sell for more than it costs to make it. Students will begin to be aware of why

Procedure:	Resources and Materials:
VICE-PRESIDENT SALES	
Discuss the duties of a salesperson, then apply some of these types of problems.	
The students could map out some routes for the salesperson to follow in the local area and in other states.	Local maps, state maps, U. S. maps
The students could make up some orders which might be placed for a shoe factory, a clothing factory, etc.	Obtain order forms from a local factory. Obtain unit prices from a local factory.
The salesperson needs to know what type of item is wanted and when it is wanted so he can inform the factory of how many of any one style is needed and how much time the factory will have to complete the manufacturing of the product.	
When discussing the sales of an item, the salesperson must know what the cost of manufacturing is so he will know what minimum price he may accept for an item when selling it. - If a shoe cost $5 to make, how much would the salesperson need to charge for the shoe when selling it.	From a local factory, obtain a price for items being made.
Discuss the three types of selling and discuss which would be the most beneficial. Discuss the assets and disadvantages of each method. Manufacturer to wholesaler, to retailer, to consumer-- a. product spread into more area easier b. product encounters three mark-up prices	

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (con't.)

Objective(s): items sold have such high prices and that the prices do not all remain with the retailer. The student will be able to divide to find the percent one number is of the other. The student will be able to figure the percent of increase by subtracting then dividing. The student will understand the meaning of commission. The student will be able to subtract and add decimal numbers. The student will be able to multiply decimal numbers and percent numbers.

Procedure:

Manufacturer to retailer to consumer
a. more truck expense for fewer people
b. product encounters two mark-up prices
Manufacturer to consumer
a. not as large spread
b. no mark-up prices from manufacturing

In the first method, if a Rival can opener cost $7 to manufacture and the sale price is $8 to the wholesaler, the wholesaler charges the retailer $10 and the retailer charges the customer $13, what is the difference from the customer back to the manufacturer?

In the above problem, what is the percent of mark-up from the manufacturer to the consumer?

In the above problem, what is the percent of increase from the retailer price of $8 to the customer price of $13.

A pair of levi jeans cost $6.50 to manufacture and they are sold directly to the consumer. If $6.50 is 72% of the consumer cost, what is the consumer cost?

If a salesperson sells $1,000 worth of items the first week and sells $500 worth the second week, then sells $200 the third week and $450 the fourth week, and if he is paid 10% of his sales, what is his earnings for that month?

Resources and Materials:

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (con't.)

Objective(s):

Procedure:	Resources and Materials:
This salesperson must pay federal taxes of 13% of gross earnings, state taxes of 1% of gross earnings, social security of 7% of gross earnings, insurance of 5% of the gross earnings. How much was computed as take out for each item, how much was the total take out from this man's gross earnings and how much take-home pay did this man receive?	
Make out a check and a check stub which might be used to pay this salesperson.	Make a copy of a check and a check stub or secure a copy from a local bank or factory.
If a salesperson earns $700 a month and spends one week (7 days) of that month in a motel each night and eating three meals a day at a care, what are his expenses for that week and how much of his $700 will he have left for the month's bills and living expenses? Motels cost $15 each night and an average meal is $2.35.	Contact a local cafe for prices for meals. Contact a local motel for current prices of motel rooms.

Evaluation:

Comments on use:

Hazel Hudson

VICE-PRESIDENT OF ADVERTISING

This department is concerned with quality control--buying the best work at the lowest cost. It tires to persuade potential buyers to accept ideas, services, or products.

Manager or Executive
Works on policy questions concerning the type of advertising, the size of the ad, the budget allowed for advertising, and the agency to be employed.
Supervises the advertisement work.

Copywriter
Creates headlines, slogans, and text.
Finds out objectives of the advertiser, what the product is, its uses, its competition, how it is distributed, where it is sold, how much the advertiser wants to spend.
If possible, he uses the product.
Remains objective in his analysis of the product (finds advantages and disadvantages).
Determines the audience which he wishes to reach with the advertisement.
Considers the types of media--radio, newspaper, billboards, television, etc.
He follows four basic rules with each advertisement:

1. Attract attention
2. Arouse interest
3. Encourage desire
4. Generate action

Artists
Prepares illustrations.
These illustrations must represent the actual product being made and sold.
Must work with all departments of the organization (factory, etc.).

Layout Specialists
Puts copy and illustrations into attractive arrangements.

Technical Workers
Responsible for satisfactory reproduction.
Becomes familiar with basis of print production, printers, engravers, etc. and works with these agencies.

Salesmen
Sells advertising space in publications, on radio, on television, for billboards.
Makes out order forms for these sales.

Depending on the size of the organization, one person may handle all of the advertising related jobs or they may be divided among several persons.

Hazel Hudson

RESOURCES

Write to: "Should You Go Into Advertising?" by Paul West. New York Life Insurance Co., Career Information Service, Box 51, Madison Square Station, New York, NY 10010.

"Career Opportunities in Advertising," American Association of Advertising Agencies, 200 Park Avenue, New York, NY 10017.

Advertising Federation of America, 655 Madison Avenue, New York, NY 10021.

American Council on Education, School of Journalism, University of Missouri, Columbia, MO 65201.

Films: "A Better Run for Your Money," 16mm, sound, color, 20 min. Discusses what makes printed material effective. Pay return postage, book 4 weeks in advance. Harris-Seybold Company, 4510 E. 71st St., Cleveland, OH 44105.

"How to Make a Good Impression," 16mm, sound, color, 20 min. Describes the offset lithographic process and traces steps in the production of a lithographed job. Pay return postage, book 4 weeks in advance. Harris-Seybold Company, 4510 E. 71st St., Cleveland, OH 44105.

"The Golden Standard," 16mm, color, sound, 17½ min. Overall picture of advertising. Pay return postage, book one month in advance.

"That the People Shall Know," 16mm, color, sound, 21 min. Interviews with six journalists. Pay return postage, book 1 month in advance. Audit Bureau of Circulation, Modern Talking Picture Service, 1212 Avenue of the Americas, New York, NY 10036.

"Thinking of You," 16mm, color, sound, 15 min. Describes the evolution of a greeting card. Pay return postage, book 1 month in advance. Audit Bureau of Circulation, Modern Talking Picture Service.

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (Advertising)

Objective(s): The student will learn to interview a person to find out specific information and the student will learn to compare quality and price. The students will learn to make informative graphs. Circle graphs require the use of fractions and multiplication of fractions. The student will use measurement to become aware of laying material on the ad so it will look neat, be informative, and will present the information in an attractive way. Use of geometric constructions

Procedure:	Resources and Materials:
Discuss the duties of an advertising person. Then apply some of these types of problems:	
The students would call or visit some advertising establishments and check on the prices of different sizes and types of advertisements, then compare the prices.	
The students could then take this information and make circle, bar, or line graphs to illustrate the differences in prices for advertisements.	Local sign makers Local newspaper Local magazine firm Local publishers Magazines
The students could use magazine and newspaper ads already done and cut them up to make a new advertisement.	
The students might draw a picture of a shoe, a can opener, a pair of levis, or some other manufactured item and design some geometric pattern in this item.	

Evaluation:

Comments on use:

Hazel Hudson

VICE-PRESIDENT OF PURCHASING

This department is responsible for knowing about the goods to be bought and of the ways in which they will be used by the organization. They are responsible for buying at the most favorable prices. They forecast price and supply trends.

Assistant Purchasing Agent
- Works with the vice-president of purchasing.
- Does the actual buying of goods which will be consumed, used, or processed by the factory.
- Interviews salesmen of all the goods to be bought.
- Visits suppliers' plants and finds new sources for buying material.
- Recommends purchase contracts.
- Studies catalogs to make comparisons of price, quality and other factors.
- Coordinates purchases with the company's production schedule.
- Arranges to have special equipment made.

Purchasing Clerk
- Sorts and types purchase orders or requisitions from various departments.
- Keeps records of purchases, costs, deliveries, and inventories.
- Keeps inventory records, files suppliers' catalogs, assists other members of the department.

(These jobs may be held by one person or by more than one person--depending on the size of the manufacturing plant.)

RESOURCES

Write to: "Should You Be a Purchasing Agent?" by Gordon Burt Affleck, Career Information Service, National Association Purchasing Agent, 11 Park Place, New York, NY 10007.

Film: "Story of Distributive Education," 16mm, color, sound, 21 min. Association Films, Inc., 600 Madison Avenue, New York, NY 10022

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (Purchasing Agent)

Objective(s): The student will learn to change weights to a standard unit and find the unit price. The student will be able to subtract the unit prices to calculate the amount of savings. The student will be able to round off decimal numbers to the nearest hundredth. The student will learn to research economic materials. The student will be informed about price trends and their causes. The student will be able to interpret a line graph. The student will be able to subtract. Be able to find percent of increase and/or percent of decrease.

Procedure:	Resources and Materials:
Compare prices in catalogs, newspaper ads, grocery stores, department stores, etc. of the same items in the same brand but in different sizes to find the best price at the best location. Make a list of these to be discussed in the class. Round off the prices to the nearest cent.	Catalogs, newspapers, magazine etc. Local grocery stores, local department stores, salesmen.
Look over catalogs or magazines or books or talk with people about prices a year ago, five years ago, ten years ago, and at the present time. Then make a line graph to illustrate these price trends.	Local economists, people in the community, local store managers
Invite a local economist to speak to the class about price trends and the causes.	Local economist, economy instructor from local high school or college
Find the differences in the increase of prices from ten years ago to the present, etc.	Student made graph about price trends.
From catalogs or other raw materials price lists, make out an order form for some type of purchase which may be made for a factory. (shoe factory, apparel factory, etc.)	Catalogs or price lists Local factory purchasing forms and agent
Interview or write to salesmen who sell to factories and compare prices of various items.	
Contact a factory to find out a production schedule for a day for that particular factory; then figure the cost and amount of supplies which will be needed to produce the goods for that day. These supplies	Local factory Supplies catalogs Factory supplies price list

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (Purchasing Agent)
(con't.)

Objective(s): The student will be able to legibly fill out a purchasing form. The student will be able to add and multiply decimal numbers as he multiples the unit price times the number of units and totals the entire purchase cost. The student will be able to multiply percent numbers by decimal numbers. The student will learn to count change by counting from the amount of the purchase up to the amount of money. The student will learn to use the following two formulas: Discount = purchase price x the percent; Purchase price = original price - amount of discount.

Procedure:	Resources and Materials:
may be limited to the raw materials being used.	
From the problem above, figure the state sales tax on the total purchase cost.	Internal Revenue for percent of state sales tax.
From the information in the above two problems, set up a simulated buying situation where one student has a certain amount of money to pay the amount on the purchase order. There will be a need for making change.	Purchase order form from a local factory Play or real money
Suppose the agent was contracting a purchase for some equipment for the industry which cost $2135 and the supplies were allowing a 14% discount, what would be the amount of the discount and what would be the total cost, without taxes, of the purchase.	Teacher made problems Student made problems Problems from various math textbooks
The purchasing agent has contracted a purchase which amounts to $5327 and he must pay 1/4 of this amount as a down payment. What is the amount of the down payment and what is the balance of the purchase?	
The purchasing agent has contracted a purchase which amounts to $354 and because of a discount, he will only have to pay $300. What is the discount rate?	
The purchasing agent contracted to buy a large piece of equipment for the manufacturing plant and the budget would not allow for full payment at the time, so	Contact a local factory for some prices of equipment

Evaluation:

Comments on use:

Subject Area(s) Manufacturing

Unit(s) Mathematics (Purchasing Agent)
(con't.)

Objective(s): The student will learn to multiply fractions. The student may learn to convert fractions to decimal numbers and subtract. The student will be able to work with the following formula: Discount rate - discount ÷ original price. The student will learn about the installment plan buying.

Procedure:	Resources and Materials:
the contract was set up on monthly payments. The equipment cost $5,679 and it was agreed to pay $578 down with 23 monthly payments of $235 a month. How much extra did this company have to pay by buying the equipment on the installment plan?	

Evaluation:

Comments on use:

Hazel Hudson

APPAREL INDUSTRY

The industry is an important source of jobs for workers with widely different skills and interests. Many of the jobs in this industry can be learned in a few weeks; others take several years.

This industry is the nation's largest employer of women in manufacturing. Most women are sewing machine operators; however, many others work in jobs such as hand sewer, bookkeeper and designer. Men usually predominate in such jobs as cutter and marker, presser, production manager, engineer and salesman.

Production Manager
Estimates production costs.
Schedules the flow of work.
Hires and trains workers.
Controls quality.
Supervises production activities of the plant.

Industrial Engineer
Advises management about the efficient use of machines, materials, and workers.
They are concerned with people and "things."

Cutting Room Occupations
Workers in the cutting room prepare cloth for sewing into articles of wearing apparel.
Hand spreaders--
Lay out bolts of cloth by hand.
Neatly pile the layers into exact lengths on cutting table.

Machine Spreaders
Lay out bolts of cloth by machine.
Machine lays cloth by traveling back and forth over the table.

Markers
Trace the fiberboard pattern pieces on large sheets of paper, making several carbon copies of these tracings.
Arrange pattern pieces so that there is just enough distance between them for the cutter to work.
Figured materials must be marked so that adjoining garment pieces will match when assembled.

Cutter
Cuts out the various garment pieces.
Follows the outline of the pattern with an electrically powered cutting knife.
Sometimes layers are 9" high.

Hand Cutters or Shapers
Trim and cut the pieces for these garments to make them conform exactly to the original pattern.
Sometimes these cutters and shapers sit in the sewing room.

Hazel Hudson

Assemblers, Bundlers or Fitters

Bring together and bundle garment pieces and accessories needed to make a complete garment.
Sort the pieces by matching color, size, and fabric design.
May mark locations for pockets, buttonholes, buttons, etc.
Identify each bundle with a ticket.

Sewing Room Occupations

Almost half of all clothing workers are sewers and stitchers. Most of the employees in these jobs are women. Sewers stitch garment cuttings together either by machine or by hand.

Sewing Machine Operators

Use heavy and fast sewing machines.
Special devices which hold buttons, guides, or folds seams are often used.
Specialize in a single operation.
Classified by title according to the type of machine they use. (single needle, blindstitch, etc.)
May be classified by title according to type of job. (cuff tacker, etc.)

Hand Sewers

Work on better quality or highly styled dresses, suits, or coats.
Often use needle and thread.

Work Distributors or Floor Boys

These may be floor girls also.
Move garment pieces from one sewing operation to another.

Inspectors and Checkers

Examine work for proper workmanship.
Mark defects and mark the operator who made the defect.
Sometimes make minor repairs.

Thread Trimmers and Cleaners

Remove loose threads, basting stitches and line from garments.
This process is called "in-process inspection."

Pressing Occupations

The shape and appearance of the finished garment depend to a large extent on the amount of pressing that is done during the after sewing operations.
Pressing seams open is called "underpressing" and makes it easier to assemble a garment.

Pressers

Use various types of steam pressing machines.
Use hand irons to flatten seams and to shape garment parts and finished garments.

Underpressers

Specialize on particular garment parts.
Their duties vary from simple smoothing of cloth and flattening of seams to skillful shaping of garment parts.

Finish Pressers

Do final pressing.
Do the ironing at the end of the sewing operations.

RESOURCES

Write to: Amalgamated Clothing Workers of America, 15 Union Square, New York, NY 10003.

American Apparel Manufacturers Association, Inc., 2000 K St., NW, Washington, DC 20006.

Associated Fur Manufacturers Inc., 101 West 30th St., New York, NY 10001.

Clothing Manufacturers Association of U.S.A., 135 W. 50th St., New York, NY 10001.

National Outerwear and Sportswear Association, Inc., 347 Fifth Ave., New York, NY 10016.

United Garment Workers of America, 31 Union Square West, New York, NY 10003.

Book: Let's Go To a Clothing Factory, by Harry Lazauer, 1961.

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Mathematics (Apparel)

Objective(s): Student will learn to multiply decimal numbers. Student will be able to multiply, figure salary for 8 hours and add. Student will be able to work with the metric system. Student will be able to change hours to minutes, divide and subtract.

Procedure:

If one dress costs $10 to produce and this apparel factory is planning to produce 154,000 such dresses in one day, what would be the total cost of that day's production?

An apparel factory spends $10,000 one day for repairing equipment, then 10 new workers were hired for $3 an hour and worked 8 hours that day. How much was spent on the repair and the 3 new employees that day?

Cutting Room Occupations

If a bolt of cloth contains 680 yards of material and the spreader spreads layers of cloth which are 50 feet in length, how many layers can the spreader spread from this bolt of material?

If it takes 4½ yards of material to make an outfit, how many meters of material would be needed?

If a machine spreader can spread the required material in 15 minutes and a hand spreader takes 30 minutes, how many more tables of cloth could be spread by the machine spreader than by the hand spreader in eight hours?

Resources and Materials:

Contact a local factory for accurate figures on cost and production number, then make up several similar problems. Teacher made problems.

Contact a local factory for accurate figures about the amount of material contained in bolts of material and the number of layers layed out.

Metric unit information

1 yard = .9144 meters

Evaluation:

Comments on use:

Hazel Hudson

BAKING INDUSTRY

The baking industry is one of the largest food processing employers in the U. S. Employs workers to make bakery products, wrap and pack these products and to deliver them to stores, homes, and restaurants. It also employs mechanics to maintain and repair the large amounts of machinery used in modern bakeries. Mechanics to serve the fleets of delivery trucks are also employed. The industry employs many managers and sales specialists to direct operations and clerical workers to perform the regular office duties.

Production Occupations

The workers in this department load and unload machines, watch the operations of the machines, and inspect the output.

Mixers

Weigh ingredients and combine them in blending machines.
Controls timing and temperatures by means of instruments.

Dividermen

Operate machines which divide the dough.
Divides according to the weight of the loaf to be produced.

Dough molders or molding machine operators

Operate machines which press all the air bubbles from the dough.
Form dough into loaves or rolls.

Helpers

Help all-round bakers.
Grease pans.
Remove bread from pans.
Push troughs and racks.
Washes pans.

Slicing-and-Wrapping Machine Operators

Feed loaves onto conveyors.
Watch the slicing and wrapping operations.
Adjust the machines and keep them supplied with plastic bags, paper, and labels.

Icing Mixers

Prepare cake icings and fillings.
Weigh and measure ingredients and mix them by machine.
Prepare cooked fillings for pies, tarts, and other pastries.

Hand Icers

They are skilled craftsmen.
They decorate special products such as wedding cakes.

Machine Icers

They are used for things which require no special skill.
They are used for routine icings.

Drivers and Route Supervisors

They supervise and train new drivers and sometimes they take over for an absent salesman.

Hazel Hudson

Driver-Salesman (routeman)
Deliver baked foods to grocery stores or homes along assigned routes.
Collect payment for delivered products.
Try to increase customers' orders.
Try to gain new customers' on their route.

Wholesale Driver-Salesman
Make deliveries to stores.
Arrange baked products on shelves or display racks in grocery store.
May restock shelves several times a day in a busy store.

Home-Service Driver-Salesman
Deliver directly to customers' home.
Report day's transactions each day.
Turn in money collected from each customer each day.
Return unsold baked goods.
Make list of what might need for the next day.

Truck Drivers
Drive vans and deliver to large stores.
Leave stock on large racks in stores storage rooms.

RESOURCES

Write to: American Bakers Assoc., 1700 Pennsylvania Ave., NW, Washington, DC 20006.
American Institute of Baking, Consumer Service Department, 400 West Ontario St., Chicago, IL 60611.
"Our Daily Bread," Standard Brands Educational Service, P.O. Box 2695, Grand Central Station, New York, NY 10017.

Films: "Home Sweet Home Style," (4094) 16mm, sound, color, 27 min. Shows relationship between home-made cookies and the mass produced variety. Can see the inside of a modern bakery. Pay return postage, book 1 month in advance. Modern Talking Picture Service, 1686 Elmhurst Road, Elk Grove Village, IL, Chicago, IL 60007.
"Famous Carolina Recipes--Old Salem Moravian Cookies," 16mm, sound, color, 7½ min. (1966). Shows how to make and decorate Moravian cookies.
"Kids and Cookies," (S-947) 16mm, color, sound, 14 min. Presents a trip through a cookie factory. Pay return postage, book ten weeks in advance. Association-Sterling Films, 8615 Directors Row, Dallas, TX 75247.
"Reap the Golden Harvest," 16mm, color, sound, 30 min. Shows history of baking industry and career opportunities it offers youth. Pay postage, book 2 months in advance. Christopher-Gerard and Associates, 4094 Fairlane Drive, Birmingham, MI 48010.
"One Loaf of Bread," 16mm, color, sound, 15 min. Traces history and highlights of wheat growing, milling, and baking from prehistoric times to the automated bakeries of today. Pay return postage, book 2 weeks to 6 months. General Mills, Inc., Film Library, 9200 Wayzata Boulevard, Minneapolis, MN 55440.

Hazel Hudson

"Bakers," 16mm, sound, black and white, 15 min. Shows members of baker's union at work in baking industry. Demonstrate the preparation of ingredients and shows the baked products. Pay small rental fee and postage. Department of Audiovisual Extension, University of Minnesota, 2037 University Avenue, SE, Minneapolis, MN.
"Baking Industry," 16mm, sound, black and white, 11 min. Shows jobs of scaler, mixer, divider, panner, oven loader, and dumper. Pay small rental fee and postage. Department of Audiovisual Extension.

Books: H. Kyrk and J. S. Davis, The American Baking Industry, 1849-1923 (1925).
E. J. Pyler, Experimental Cookery From the Chemical and Physical Standpoint, (ed. 1943).
Walter Buehr, Baking Science and Technology (2 volumes, 1952)
Grete Mannhiem, Bread the Staff of Life, The Baker's Children a Visit To a Family Bakery

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Baking Industry

Objective(s): Student will be able to divide whole numbers and multiply and divide fractions. Student will be able to multiply and divide decimal numbers and may be taught to set up ratios. Student will be able to read maps. Student will be able to use scale of miles to figure mileage and will be able to add. Student will be able to subtract and make change.

Procedure:	Resources and Materials:
Production Occupations Mixers If a recipe for 100 cookies calls for 2½ cups of sifted flour and the bakery wanted to make 500 such cookies, how many cups of flour would be needed?	
If a recipe for 3 dozen raisin sugar cookies calls for 3/4 cups of sugar, and the bakery wanted to make 25 dozen such cookies, how much sugar would be needed?	Teacher made problems
Dividermen If a loaf of bread weighs 1½ pounds when cut and the dividerman has dough weighing 15 pounds, how many loaves of bread will be cut from that 15 pounds of dough?	Contact local bakery for accurate figures.
Change the weights given above to metric weights.	1 kilogram = 2.204 pounds
Drivers and Route Supervisors If a driver delivered 4 dozen cakes which cost $1.55 for each cake and 8 dozen cookies which cost .59 per dozen, and 2 dozen pies which cost $1.39 for each pie, how much money would the driver need to collect from this store manager?	
Since the driver has to map out his own route in the city or country, the student could be asked to map out a delivery route in the area in which he lives or in a nearby city.	

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Baking Industry (con't.)

Objective(s):

Procedure:

After mapping a route, the student could then figure the number of miles which will be traveled from the bakery around the route and back to the bakery.

After figuring the miles, the student could then figure the amount and cost of gasoline which will be needed to run his truck around the route. The truck might get 10 miles to a gallon of gasoline.

Make out some order sheets which might be used by routemen and figure up total prices which he would collect at each house or store and figure the total he would turn in at the end of the day.

After figuring some total prices for orders, have the students figure the amount of change which would be returned if the customer gave various denominations of money, such as $5, $10, etc.

Resources and Materials:

Use of maps, rulers, scale of miles

Use of current gasoline prices

Miles ÷ miles per gallon = number of gallons needed

Number of gallons x cost per gallon = price

From the local bakery you might be able to get some order sheets or could make some similar to order sheets

Evaluation:

Comments on use:

Hazel Hudson

MOTOR VEHICLE INDUSTRY

Few products have had as great an impact on everyday life as the automobiles, trucks, buses, and other vehicles manufactured by the motor vehicle industry. The widespread use of motor vehicles has made contributions to the nation's economy by helping to create new industries and developing existing ones. The automobile industry is a major consumer of many basic commodities such as steel, rubber, and plate glass. The automobile industry offers employment to men and women with widely different backgrounds of education and skill. There are assemblers, materials, handlers, and custodial employees. The largest number of employees work in factory (plant) occupations. These occupations include: tool and die maker, millwright, electrician, machine tender. There are office and administrative jobs as clerks, business machine operators, stenographers, purchasing agents, and personnel assistances also.

Production Occupations

After the designing and engineering phases have been completed, thousands of component parts that will later be assembled into a complete motor vehicle must be produced. A large variety of materials are used, the most common being steel, aluminum, copper, zinc, plastic, rubber, fabric, glass, iron, and lead.

Materials Handling

The production of motor vehicles by the assembly line process requires an elaborate system of material movement to supply the assembly line and to remove finished products.

Drivers

Operate power trucks which deliver parts or subassemblies to the assembly line.

Move material between plants.

Materials Handlers

Load and unload parts from trucks.

Load and unload parts from containers.

Overhead Crane Operators

Used to move raw steel stock, heavy dies.

Used to move other materials that cannot be lifted by hand.

Factory Clerks (checkers, stock chasers, and stock clerks)

Coordinate the delivery parts to the proper location on the assembly line.

Check, receive, and distribute materials and keep records of incoming and outgoing shipments.

Machining Operations

Machining is the metal working process generally best adapted for the production of parts to precise sizes. It is a process of cutting or chipping away excess metal from a part or a piece of metal by the use of power-driven machine tools. Automobile parts are manufactured to precise dimensions by machining workers.

Hazel Hudson

Machine Tool Operator

Selects proper dies, blades, cutters, and puts them into position of machine.

Checks their positions using rulers, squares, templates, or built in gauges.

Sets machine controls to required pressure and depth.

Measures and locates bending and cutting lines (uses ruler, compasses, and straightedge).

Makes all working lines and reference points.

May preheat metal stock if necessary.

Places workpiece against machine and runs it through.

Checks to see that it conforms to specifications.

Uses rulers, simple gauges and templates.

Removes rust and scale from metal.

Sometimes stacks and marks finished pieces.

Pack for shipment.

Transport packed pieces to loading or storage area.

Regular maintenance on equipment (oil, sharpening).

May have one of the following titles:

a. Engine lathe operator--who shapes metal pieces by turning against a cutting edge.
b. Drill press operator--who marks holes in metal stock.
c. Milling machine operator--who uses machines with multiple cutting heads to remove excess metal from parts.
d. Grinding machines operator--who smoothes surfaces.

Tool and Die Maker

Highly skilled.

Makes the tools and dies which are used to make other parts for various industries.

Repair dies, gauges, jigs, and fixtures.

Makes metal molds used in die castings and plastic moldings.

Makes gauges and other measuring devices used in manufacturing precision of metal parts.

Constructs dies that are used in stamping, pressing, forging, and other metal forming operations.

Makes dies for radiator grilles, instrument panel frames, auto bodies.

Makes several kinds of dies that are used to shape, punch, and cut out metal.

Have to know shop practices, mathematics, and blueprint reading.

Do precise handwork, use precision measuring instruments, extreme accuracy is important.

Must know how to use many machines.

Assembly Machine Operators

The machine tools, the conveyors, and the inspection equipment often are controlled by electronic, hydraulic, or air control mechanisms. Assembly workers tend the automated lines of machine tools by watching the control panels for interruptions of the machines' normal functioning.

Metalworking Occupations

Punch Press Operator

Run power-driven presses that vary in size.

Form brackets, clips, or other small parts to massive presses which form, trim, and pierce holes in automobile doors, body, panels, and frames.

Welders

Manual Electric-arc Welders and Gas Welders.

a. Work in jobs in parts and body manufacturing plants.
b. Work in maintenance jobs repairing and rebuilding machinery and equipment.

Machine (resistance) Welders

a. Employed on assembly lines.
b. Weld the separate parts of the bodies and subassemblies.

Foundry Occupations

Castings for automobile parts, such as engine blocks, are produced by pouring metal into molds where it cools and hardens in the shape of the molds.

Patternmakers

They make wood or metal patterns in the shape of the shape of the final casting desired.

Coremakers

They shape the bodies of sand "or cores" which are placed inside molds in order to form hollow spaces needed in castings.

Machine Molders

They make the sand mold into which the metal is poured.

Melters

Operate electric furnaces and cupolas used to melt metal for castings.

Metal Pourers

They do the actual pouring.

Shakeout Men

After the casting cools, these men remove it from the mold.

Cleaners

After the casting is removed, these men clean the casting and remove the excess metal.

Forging Occupations

Those automobile parts which must withstand great stress, such as axles, are shaped by forging hammers and presses in the forage shop.

Hammermen

They operate drop hammers which pound metal into various shapes between closed dies.

Heaters

They heat the metal stock in a furnace to prepare it for forging.
They pass the stock to the hammermen.
Cleaners, finishers, heat treaters, inspectors.

Finishing Occupations

Many finishing operations must be performed before a car is completed. For example, the metal surfaces must be readied for finishing, the exteriors painted, the interiors covered, the seats upholstered, and finally, the finished product must undergo a thorough inspection.

Metal Finishers

They file and polish rough surface areas of metal parts in preparation for painting.

Platers

They put a thin coat of chrome on automobile bumpers and "hardware" for ornamentation and protection against corrosion.

Sprayers

They operate spray guns to apply paint or other finishes to the metal parts.

Polishers

They rub the finished surfaces by hand or polish them with a portable motor-driven buffing wheel.

Cutter

Cuts fabric or leather to the specific shape according to a pattern.

Sewing Machine Operator

They use a power-driven machine and sew together the upholstery sections.

Trimmers

They arrange and fasten springs and padding or foam rubber for the seats and backs and tack the covering material in place.

Assembling Occupations

Subassemblies

They put together small parts.

Line Assemblies

They put together subassemblies and parts.

Automobile Assembly Plant Assembly

They put together the completed car.

Custodial Occupations

- Janitors
- Portors

Plant Protection Occupations

- Plant Patrolmen
- Gatemen

Maintenance Occupations

Electricians, electronic technicians, machinery repairmen

Millwrights move, install, and maintain heavy machinery and mechanical equipment.

Plumbers and pipefitters lay out, install and repair piping, valves, pumps and compressors.

- Carpenters
- Stationary engineers
- Sheet metal workers

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Motor Vehicle

Objective(s): The student will understand significant digits and their use in manufactur accurate sized parts. Students will be able to use precision and greatest possible error. Students will be able to figure relative error. Relative error equals greatest possible error. Student will be able to perform multiplication and retain accuracy of measure. Use of algebra and percents. Students will be able to multiply percents and to round off numbers. Student will be able to find the circumference of a circle. Student will be able to use ratio.

Procedure:
How many significant digits are in: (a) 3680.02, (b) .00315, (c) 2.9 x 104, and (d) 54100? Express each number as a range.

A drilled hole has a diameter of 1.675. Assuming a maximum error of measurement, what is the (a) absolute error, (b) relative error, and (c) percentage error?

Express each number in scientific notation:
(a) 346, (b) 6010, (c) 1987000000000

Give the precision and the greatest possible error for the measurements: (a) 3 miles, (b) 4.1 miles (c) 0.04 pounds

A measure of 2.78 is correct to ±0.002 and a second measure of 0.0438 is correct to ±0.00003. Which measure could have the largest relative error?

Multiply 2.72 x 3.1 x 8.15. Use the rules for significant digits in a product. How does this compare with slide rule accuracy?

Add 8.45, 21.35, 46.55, 2.05, 31.5. Use the rules for significant digits in addition.

Resources and Materials:
MATHEMATICS AT WORK
Published by the Educational Relations Staff, General Motors Corporation, Detroit, MI 48202

Teacher made problems and textbook problems

BOOKS ABOUT MEASUREMENT
NUMERICAL MATHEMATICAL ANALYSIS by Johns Hopkins Press, Baltimore, James B. Scarborough

GENERAL MOTORS ENGINEERING JOURNAL, "Making Meaningful Measurements" pp. 20-25, Paul K. Winter, Vol. 9, No. 2 (1962)

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Motor Vehicle (con't.)

Objective(s): Use of algebra and percents. Students will be able to multiply percents and to round off numbers. Student will be able to find the circumference of a circle. Student will be able to use ratio. Student will be able to multiply and convert to metric system of measure.

Procedure:

In the foundry, different mixtures of ingredients are made to make up the compositions of iron strength to make the castings.

How many pounds of Ferrochrome containing 70% chromium should be added to 1700 pounds of molten iron with a concentration of 0.10% chromium in order to obtain a casting with a concentration of 0.30% chromium? (Use of algebra)

Direction for making a certain kind of bronze called for 84% copper by weight, 8% tin, 0.05% iron, 0.3% lead and 0.3% phosphorus. The remainder is to consist of zinc. If 3000 pounds of bronze are to be made, how many pounds of zinc will be needed, to the nearest 10 pounds?

The rear wheel of John's bicycle is 28 inches in diameter. How many feet does his bicycle travel during 1000 revolutions of the rear wheel?

How many times will a 24-inch bicycle wheel revolve in traveling 1 mile?

The gear ratio of a car is defined as the number of revolutions of the flywheel of the engine to the revolutions of the rear wheels. If the gear ratio of certain car is 3½ to 1, how many revolutions will the wheels make as the engine flywheel revolves 100 times?

Resources and Materials:

MATHEMATICS AT WORK, Number 1, General Motors, 1963

THE CUPOLA AND ITS OPERATION, American Foundrymen's Assoc. Second Edition, Chicago, 1954

Evaluation:

Comments on use:

Subject Area(s) Manufacturing

Unit(s) Motor Vehicle (con't.)

Objective(s):

Procedure:

The people who work with the interior sewing must measure material. If a person has a bolt of material which contains 20 yards of material and each bucket seat in a car uses 7 yards of material, how many seats could be made from one bolt of material?

An automobile averages 18 miles per gallon. Its gasoline tank holds 21 gallons. How far might you expect this car to travel on a tankful of gasoline? Express your answer in kilometers.

Resources and Materials:

Evaluation:

Comments on use:

Hazel Hudson

PULP AND PAPER INDUSTRY

This industry produces thousands of paper products such as newsprint, business forms, facial tissue, building board, paper bags, writing paper, and paperboard containers and boxes. Manufacturing plants in the paper industry are engaged in one or more of three different operations. The production of pulp (the basic ingredient of all paper) from wood, reused fibers or other raw materials; the manufacture of paper or paperboard (thick paper) from pulp; or the conversion of rolls of paper or paperboard into finished products.

Production Occupations

More than three-fourths of all employees in the industry work in production jobs. It takes between 12 and 15 hours, on the average, for pulpwood or other raw materials to be converted into rolls of paper or paperboard.

Pulp Plants

Woodyard and Wood Preparation Occupations

1. Crane Operators
   a. Remove logs from the river, trucks, or trains and put into piles in the woodyard.
   b. Remove logs from woodyard and put them on conveyors leading to barker drum.
2. Barker Operator
   This machine removes the bark from logs by tumbling them against each other and against the rough inner surface of the drum.
   a. Feeds "drum barker" machine.
   b. Tends to the chemical or mechanical process which separates the pulp fibers.
3. Chipperman
   Operates the machines which have large knives rotating at great speeds which reduce the logs to small chips of wood about the size of a quarter or a book of matches.

Pulpmaking Occupations

Digester Operator (cook)

Digester machines are enormous vat-like cast-iron tanks more than three stories high and thirty feet in diameter. They operate like giant pressure cookers, which "cook" the chips with chemicals under high temperatures and pressure. When the pulp fibers are removed from the digester, they are washed to remove the chemicals.

a. Determines the amount of chemicals to be used and the cooking temperature and pressure.
b. Directs the loading of the digester with wood chips and chemicals.
c. Determines by checking an instrument panel, that proper conditions are being maintained.

Grinder Operator

Operates the two or three drums which wash and grind the pulp to remove the black color from the pulp.

Screenman

Operates the screens which remove all remaining particles of bark.

Bleacherman

Tends to the three chemical processes which bleach the pulp to a pure white color.

Hazel Hudson

Pulp Tester

A laboratory worker who tests and records results on a graph for interpretation. He tests chemical reactions on pulp, etc.

Paper and Paperboard Plants

Stock Preparation Occupations

Head stock preparer (beater engineer)

Engineers the beating machine which is an enormous cylindrically shaped tank about four feet high and twenty feet in diameter. At one end of this cylindrical tank is a huge iron wheel with many iron blades projecting from its rim. It mixes the pulp with water and chemicals.

Beaterman

Operates the beater machine and determines the kind and amount of chemical and dyes that are used and the length of time that the pulp is beat to determine the color and strength of the paper.

Operates a fourdriner, in which the pulp solutions pour onto a continuously moving and vibrating belt of fine wire screen.

Operates a cylinder machine which is used to make certain types of paper such as building and container board.

Machine Room Occupations

Paper Machine Tender

a. The quality of the paper depends largely on the skill of this worker.
b. His principal responsibility is to control the "wet-end" of the papermaking machine, where paper, a specified thickness, width, and physical strength, is formed.
c. Checks control-panel instruments to make certain that the flow of pulp and the speed of the machine are coordinated.
d. Determines whether the paper meets the required specifications by interpreting laboratory tests or, in some instances, by visually checking and feeling the paper.
e. Supervises less skilled workers of the machine crew, and with their help, keeps the paper moving smoothly through the machine.
f. May also replace worn felts and wire screens.

Backtenders

a. Controls the "dry-end" of papermaking machine, where the paper is dried and prepared either for shipping or converting into finished products.
b. Controls the pressure and temperature of the rolls that dry and finish the paper and give it correct thickness, inspects the paper for imperfections, and makes sure that it is being wound tightly and uniformly into rolls.
c. Adjusts the machinery that cuts the rolls into smaller rolls.
d. May weigh and wrap the rolls for shipment.

Paper Tester

Determines whether all necessary processes have been correctly performed. Works in a laboratory usually near the end of the fourdriner.

Hazel Hudson

Relies on precision equipment:

1. Instruments are minutely calibrated for registering the least variation in paper samples.
2. Samples are collected at frequent intervals--every 20 minutes to once an hour.

The five most common test instruments are:

1. Tear tester--indicates the number of grams per lineal inch will withstand before tearing.
2. Mullin--measures the amount of pressure it can take before busting.
3. Scale--registers the weight of paper per square unit.
4. Taber--registers the degree of stiffness when bent forward and backward.
5. Caliper--measures the thickness to a thousandth of an inch.

Tensil Test

This test pulls the sample to indicate the degree of fiber bonding.

Tests are also made for:

1. Moisture content
2. Moisture proof
3. Oil penetration
4. Scoring and folding (2,200) folds without cracking

Prepares sheets or tickets for each particular order.

1. Notes customer specifications.
2. Requirements demanded by the quality control department of his mill and the results of the tests he has made are recorded.
3. Makes out sheets for defects and indicates which machine operator made the defect.

Finishing Occupations

Supercalender Operator

a. Places huge rolls of paper onto a machine which gives the paper a smooth and glossy finish.

b. Inspects the finished paper to make sure that specifications have been met.

Paper Sorter and Counter

Inspects sheets of paper for tears, dirt spots, and wrinkles.

Counts paper sheets.

Converting Plants

Envelope Machine Operator

Feeds and tends an automatic machine that makes envelopes from either rolls of paper or prepared envelope blanks.

Loads the rolls of blanks into the machine and supplies the machine with glue.

Corrugator Operator

Regulates the speed of the machine that glues together three pieces of paperboard into corrugated paperboard.

Corrugated paper is used in manufacture of shipping containers.

Printer-Slotter Operator

Sets, adjusts, and operates a machine which cuts and creases corrugated or paperboard sheets and prints designs or lettering on them.

Positions the printing plates and cutting devices and turns keys to control the distribution of printing ink, pressure of rollers, and speed of the machine.

Die Maker

Makes cutting dies used on machines that produce folding cartons (collapsible cartons).

Compositer

Supervise and design the production of paper and paperboard containers and packages.

Pressmen (printing)

Sometimes employ artists who work out the letterings, designs and colors.

Miscellaneous Occupations

Maintenance Mechanics

Millwright

Maintains, installs, and repairs machinery and equipment and examines paper machine rolls, bearings, and pumps to insure that they are in good working condition.

Takes apart and reassembles machines and equipment when they are moved in the plant.

Instrument Repairmen

Installs and services electrical, electronic and mechanical instruments that measure and control the flow of pulp, paper, water, steam and chemical activities.

Welder

Welds machines and equipment.

Pipesetter

Lays out and installs pipes.
Repairs pipes.

Machinists

Makes replacement parts for mechanical equipment.

Stationary Engineers

Maintains and operates power plants, motors, and turbines.
Maintains and operates steam engines, boilers, and air compressors.

Painter

Paints the machines and buildings.

Carpenter

Maintains and builds wood equipment.

Electrician

Repairs wiring, motors, and switches.

RESOURCES

Write to: American Forest Products Industries, 1835 K St., NW, Washington, DC 20036.
American Paper Institute, 260 Madison Avenue, New York, NY 10016.
Fibre Box Association, 224 S. Michigan Ave., Chicago, IL 60604.
Institute of Paper Chemistry, 1043 E. Sound River, St., Appleton, WI 54911.
National Paper Box Manufacturers Association, Inc., 121 N. Broad St., Philadelphia, PA 19107.
National Paper Trade Association, Inc., 220 E. 42nd St., New York, NY 10017.
Pulp & Paper Machinery Assoc., 733 Third Avenue, New York, NY 10036.

Films: "Paper: The Messenger of Mankind," 16mm, sound, color, 29 min. (1969). Takes viewer on a trip through forest lands to show how trees are grown, cultivated, and protected. It then continues to go through the entire papermaking process. Pay return postage. Book three weeks in advance. Hammermill Paper Company, Educational Service, Advertising Department, East Lake Road, Erie, PA 16512.

"State of the Environment," 16mm, sound, color, 12½ min. (1972). A news team visits pulp and paper mills, paper recycling plants, timber harvest areas. Ecology oriented. Pay return postage and insurace. Book 6 weeks in advance. Georgia-Pacific Corporation, Educational Film Library, 900 SW Fifth Avenue, Portland, OR 97204.

"Finns Know Their Wood," 16mm, color, sound, 27 min. Glimpse of Finnish paper and wood industry. Shows all phases of the timber from forestry to papermills. Pay return postage. Book 2 weeks in advance. Consulate General of Finland, Embassy of Finland, 540 Madison Avenue, New York, NY 10022.

"The Road Ahead," 16mm, sound, color, 29 min. A tribute to Joseph Tonelli, President of the United Baper Worker's International Union. Shows how the union has worked to correct the terrible working conditions of a papermill. Also shows a good picture of paper making, from the stripping of the logs to their conversation into pulp and finally into paper. Pay all postage and insurance. Book 2 months in advance. West Glen Films, 565 Fifth Avenue, New York, NY 10017.

"A Visit at Longview Fibre Company," 16mm, color, sound, 27 min. Presents a description of the paper and paperboard making process from forests to consumer products. Pay return postage and must insure for $200. Book 6 weeks in advance. Longview Fibre Company, P.O. Box 639, Longview, WA 98632.

"It's a Set Up," 16mm, color, sound, 22 min. Tells story of a paper box from procurement of raw material to completion of manufacturing process. National Paper Box Manufacturers Association, 910 City Entre Boulevard, Philadelphia, PA 19107.

"Great White Trackway," 16mm, color, sound, 27 min. Portrays a complete trip through a paper factory. Pay transportation charges. Hammermill Paper Company, Educational Office, Advertising Company, 1557 East Lake Road, Erie, PA 16512.

"Out of the Woods," 16mm, color, sound, 15 min. Details transition from tree to newsprint. Pay transportation charges. Daily Tribune, P.O. Box 311, Royal Oak, MI 48068

"The Forest About Us," 16mm, black & white, sound, 30 min. Story of pulp and paper industry. Pay return postage. Quebec Government House, The Film Officer, Rockefeller Center, 17 West 50th St., New York, NY 10020.

Books: Newsprint and Paper Industry (1941) J. A. Guthrie.
From Trees to Paper: The Story of Newsprint (1952), H. B. Lent.
Story of Papermaking (1954) E. Sutermeister.
Pulp and Paper Mill Instrumentation (1957) E. J. Cole and W. H. Mehaffey
Modern Pulp and Paper Making (1957) G. S. Witham
Paper (1960) Jerome S. Meyer
I Want to Be A Forester, PZ10 B1472 Ib, Career Ed. Project, State Fair Community College, Sedalia, MO

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Pulp and Paper

Objective(s): Student will be able to work with volume and surface area of a circle. Student will be able to multiply. Student will learn to use a caliper. Student will learn to convert minutes to hours or hours to minutes and multiply.

Procedure:

If a digester machine is 30 feet in diameter and is 45 feet high, what is the volume and surface area of the digester machine?

If you can make 100,000 sheets of paper from one log, how many sheets of paper could be made from 50 logs.

Have problems using the caliper.

If 100 paper envelopes could be made in 3 minutes, how many could be made in 8 hours?

Resources and Materials:

Teacher made problems.

Contact a pulp and paper plant for some accurate information to make up some problems.

Textbooks problems.

Evaluation:

Comments on use:

Hazel Hudson

VICE-PRESIDENT OF OFFICE MANAGEMENT

This department is concerned with the coordination and control of the routine details incident to the orderly functioning of a business office. Office management is not concerned with the operation of primary business functions such as overall administrative direction, sales, production, but rather is responsible for the paper work essential to the smooth operation of all elements of a business.

Office Manager

Responsible for seeing that the work goes smoothly. Plans and directs the administrative services. Engineers the planning and utilization of office space. Usually responsible for budget controls, clerical renumeration, equipment and supply standards and office systems and procedures. Maintains close contact with the general manager.

Payroll Clerk

Supervises clerks, maintains efficiency, and takes care of special details. Collects employees' time cards, job tickets, or other records of working hours.

Transfers itemized amounts to payroll sheet and notes rate of pay for each kind of work--(straight hourly pay, flat piecework rate, overtime pay,etc.)

Receives payroll sheets when they are completed.

1. Checks figures and calculations.
2. Applies the information to employee's check stub, quarterly card, and another payroll sheet.
    a. Writes in total working hours of the employee, his pay at each rate, his gross earnings.
    b. Lists deductions (taxes, social security, union dues, insurance, credit union, bonds, etc.).
    c. Totals these and subtracts from gross pay.
    d. Uses prepared charts for figuring withholding and social security.

Makes out pay checks.

1. Fills in name, date, pay period, and net wages.
2. Gives the check to authorized person for signing.

Distributes to foreman or department head. Sends quarterly reports to federal and state government about social security and withholding tax deductions. Issues end of year withholding tax statements on each employee. Sometimes computers are used in this department.

Receptionists

Receive and give information to the customers and other people who call or visit the business. Finds out the nature of each caller's business, directs him to those in the office or business who may be able to help him. May also handle other office tasks as well. May receive and route telephone inquiries to the proper company officials. Typing, sorting and opening mail, filing, keeping books or petty cash accounts or operating an office telephone switchboard may be among their responsibilities.

Bookkeeping Workers

Record day-to-day business transactions in journals and ledgers and on other forms. Prepare summary statements showing amounts of money taken in and paid out by the firm and from whom it came and to whom it went. Operates business office machines.

Hazel Hudson

Stenographers and Secretaries

Take dictation and transcribe notes on a typewriter. Answer telephone, operate various office machines, perform clerical tasks. Relieve employers of routine duties and often handle a variety of business details on their own initiative. Schedules appointments, arranges reservations, takes care of correspondence, handles the records of the private business connected with that office.

Typists

Operate the typewriter. Produces typed copies of printed and handwritten materials. Addresses envelopes, types headings on form letters, copy directly from handwritten or typed drafts and do other routine work. Performs duties requiring a particularly high degree of accuracy or independent judgment; work from rough drafts, may type and plan complicated tables, may combine and rearrange materials from various sources, prepare master copies. Sometimes combine typing with filing, sorting mail, answering the phone and other general office work.

Cashiers

Receive the payments made by customers for goods and services. Make change when necessary, give receipt for the payment. Keep records of the amount of money involved in each transaction so that cash accounts can be balanced at end of each day. Some cashiers also prepare cash and checks for deposit at the bank. Some are authorized to pay out or write company checks to cover such expenses as the purchase of supplies and equipment. They may prepare pay envelopes or paychecks, make out sales tax reports, and do related work.

Office Machine Operators

Set up and adjust machines. Keep machines in top shape and call the repairman to fix it. Order supplies for machine from the company stockroom. Some office machines are: adding and calculating machines, duplicating machine, keypunch machine, sorting machine for punched cards, etc.

Shipping and Receiving Clerks (Warehouse Managers)

Do the clerical work that is necessary to enable manufacturing companies, wholesalers, and other business firms to keep track of goods transferred from one place to another. Keep records of all shipments sent out and received by his employer. Checks shipments to be sure the customer's order has been correctly filled. Type or prepare by hand the invoices and other shipping forms needed, look up freight and postal rates, record the weight and cost of each shipment, and check to see that the shipment is properly addressed. Keep records of the date and other details associated with each shipment. Sometimes shipping clerks requisition from the firm's stockroom the merchandise which is needed to fill each order, wrap and pack the shipment, and direct its loading on company trucks, ensuring that the weight is evenly distributed and fragile items are safely placed. Receiving clerks do similar work when shipments reach their destination. They find out whether their employer's orders have been correctly filled by verifying incoming shipments against the original order and the accompanying bill of lading invoice or other record; and they check to see whether the merchandise in each shipment has arrived in good condition. Receiving clerks maintain records of all incoming shipments and the condition in which they were received. Do other clerical work related to damaged or lost shipments. Routing shipments to the proper department of the company or section of the warehouse or to the stockroom may also be part of their job.

Subject Area(s) Manufacturing

Unit(s) Office Management

Objective(s): The student will learn to figure salary. The student will be able to multiply and subtract. The student will understand what time-and-a-half means. The student will learn to fill out payroll records and check stubs. The student will become familiar with social security and why it is deducted from pay checks. The student will learn to correctly fill out forms. Student will be able to multiply percent numbers. The student will learn to read and use tables. Student will learn to multiply percent numbers. Student will learn why credit unions are set up.

Procedure:

If a person works for an hourly rate, figure the amount of money a person would earn in one day if he worked 8 hours during the day and he earns $2.35 each hour.

If the person in the above problem earns time-and-a-half for overtime hours beyond 8 hours in one day, figure the amount of daily earnings a person would have if he worked 10 hours.

A person working at an apparel factory or a small motors factory, they may be paid on a piecework basis. Suppose a person handles 176 articles during one week and is to be paid 62¢ per article, what would be the person's earning for the week?

A factory pays its employees on a piece-rate basis of 36¢ per article. To discourage careless workmanship, the company deducts 45¢ from the earnings of an employee for each article that is rejected during inspection. How much did a person receive during a week in which he produced 485 articles, but had 23 of these articles rejected?

A salesman often works on a straight commission. An advertising salesman receives 15% of the cost of each ad he sales. If he sold two ads which cost $50 how much would he earn?

Set up a simulated factory group of workers and figure a series of pays for various employees, then have them

Resources and Materials:

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Office Management (con't.)

Objective(s): Student will know how to measure margins. Student will learn to count money. Student will learn to read charts. Student will learn to measure in English and metric. Student will be able to figure surface area and volume of prisms.

Procedure:

recorded on payroll sheets and on check stubs.

When studying payroll, there should be a study made of the deductions which will be taken from a person's paycheck. One such deduction is social security. A sutdy should be made about social security so the student will understand what social security is and why it is deducted.

Have all students who do not yet have a social security card to fill out the form to receive a card.

From the local social security find out the current percent which is taken out for social security and make up problems in which the students figure out the amount of social security which will be taken from various checks. Example: If a person earns $135 a week and the percent of social security taken for that year is 5.65%, the student would multiply the two to figure the social security.

Secure a table from the local social security office which gives the amount of social security which is deducted for certain amounts of money and let the students work with this table to understand how social security is obtained without multiplying each working individuals salary times a percent number every day or every week, etc.

Resources and Materials:

Payroll sheets and check stubs from local factory and local bank.

Filmstrip: "Help I'm a Number," 1972 slides, 20 min. This set of 75 slides, in full color, gives an explanation of the social security program. Social Security Administration, Check at local office, book two to three weeks in advance.

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Office Management (con't.)

Objective(s):

Procedure:	Resources and Materials:
Another deduction to be taken from a paycheck is federal income tax. Discuss the reason for deducting income tax from everyone's paycheck.	"Death and Taxes," 16mm, sound, color, 18 min. History of U. S. taxes. Book two weeks advance.
Discuss the fact that each state in the U. S. has different rates of income tax deducted for state taxes and discuss why they are deducted. Find out the percent for your state and figure some salaries times the tax percent to see how much of a salary would be paid into the state tax.	H & R Block, local State Revenue
Discuss that some places have a credit union and some money is sometimes deducted from a paycheck and put into a credit union.	Local credit union establishment
After working several persons salaries, fill out some checks and check stubs with all of the deductions listed.	Acquire some checks from a local bank or factory or somewhere that has some checks which could be used or make copies of checks to use.
Often one person in an office is selected to take care of petty cash. Set up a petty cash account and submit some purchase orders and receipts to this account so the petty cash handler may practice in subtracting different amounts for the existing balance.	
A bookkeeper has a large job. Set up some books and have the students practice entering purchases and income to learn a little about the idea of keeping records of everything and to keep the balance high enough to keep from running out of money.	Teacher made problems or boughten practice sets dealing with bookkeeping.

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Office Management (con't.)

Objective(s):

Procedure:	Resources and Materials:
A typist has to know some math in operating a typewriter. A typist has to set up columns on a paper at equal intervals. A typist has to use margins on the typed page which makes the material look nice.	Typing manual Typing instruction book
A cashier must know how to count money. Set up a simulated cash register where a student will be counting money.	Play money
Look up on charts the freight and postal rates on various sizes and weights of packages going to various distances.	Rate charts from local post office
Bring various sizes of packages to class and have the students measure them. They may be measured in English system of measure and in the metric system of measure.	Boxes from any source
Investigate the size of various size trucks used for hauling packages of all types and figure out how many packages will fit inside trucks of certain size. First figure out how many packages if the packages are all the same size, then figure out some when the packages are of various sizes.	Local trucking firm for information about truck sizes

Evaluation:

Comments on use:

RESOURCES

Write to: United Business School Assoc., 1101 Seventeenth St., NW, Washington, DC 20036.
Office Employers International Union, 1012 Fourteenth St., NW, Washington, DC
United States Department of Labor, Bureau of Labor Standards, Washington, DC 20210
Clerical Occupations for Women's Today and Tomorrow (Women's Bureau Bulletin 289, 1964) Superintendent of Documents, Washington, DC 20492 (cost $.35).
Teachers may obtain information concerning training for office occupations from: Division of Vocational and Technical Education, Bureau of Adult Vocational and Library Programs, U. S. Office of Education, Washington, DC 20202 or from State Supervisor of Office Occupations Education, State Department of Education, State Capital.

Films: "Credit in Business," 16mm, sound, color 12½ min. (1969). Portrays need for secretaries, office workers, machine operators, programmers, etc. in the business world. Pay return postage. Book 3 months in advance. National Career Center, Department FF, 3839 White Plains Road, Bronx, NY 10467.
"The Road Ahead," 16mm, black and white, sound, 28 min. Shows how a high school education can prepare the student to meet today's job requirements. Pay return postage. Association Films, Inc., 600 Madison Ave., New York, NY 10022.
"Education Plus--Cooperative Office Occupations," 16mm, sound, color, 20 min. Pay transportation charges. Keystone Steel and Wire Co., The Venard Organization, Audio-visual Department, Peoria, IL 61607

Books: Busy Office, Busy People, Jane Barr.

Write to: "Receptionists," Bulletin No. 1550-71, 5c, Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

Films: "If an Elephant Answers," 16mm, color, sound, 26 min. Shows how business customer can receive full benefits from their communications facilities. Available through any Bell System Telephone Business Office.
"Invisible Diplomats," 16mm, color, sound, 20 min. Shows the importance of a well-trained switchboard operator to the company. Available through any Bell System Telephone Business Office.

Write to: American Records, Management Assoc., 738 Builders Exchange, Minneapolis, MN 55402.

Film: "Bookkeeping and Accounting," 16mm, black and white, sound, 10 min. Pay return postage and rental fee. Carl F. Mahnke Productions, 215 E. Third St., Des Moines, IA 50309.

Write for: "Stenographers and Secretaries, Typists" (Bulletin No. 1550-84), 5c. Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

Films: "Impressions," 16mm, color, sound, 11 min. Shows proper selection of typewriter supplies. Pay return postage. Book 6 weeks in advance. International Business Machines Corp. - OP Film Library. Department No. 957, Lexington, KY 40507.
"Right at the Typewriter," 16mm, black and white, sound, 29 min. Pay postage. Book 6 weeks in advance. Same address as for "Receptionists."
"This Business of Numbers," 16mm, color, sound, 20 min. History of arithmetic and its use with data processing. Pay return postage. Book 2 weeks in advance. UNIVAC--DIVISION OF SPERRY RAND, Advertising and Sales Promotion, P.O. Box 8100, Philadelphia, PA 19101.

Hazel Hudson

VICE-PRESIDENT OF DESIGN AND DEVELOPMENT

This department is concerned with the arrangement of the basic elements, both material and conceptual, that comprise a man-made object of any kinds. Design is done for others, not for personal satisfaction. Design selects the elements to be calculated and tested by the logic and proofs of engineering. Industrial design is three-dimensional. It requires a high degree of technical knowledge concerning production processes, combined with a thorough knowledge of basic aesthetic principles and an understanding of consumer needs and desires.

Industrial Designer

Combines technical knowledges of materials, machines and methods of production with artistic talent to improve the appearance and functional design of machine-made products. Spends time doing historical research on the product or related products. Studies competition in the market and the ways in which the product may be used. Sketches a variety of possible designs, which are examined from many points of view. After a design is selected by company officials, a model may be made by the designer. Often this first model is made of clay so it can be altered easily to reflect modifications. A workable model is usually made. May design containers and packages, prepare small exhibits for display purposes or design the entire layout for industrial fairs.

RESOURCES

Write to: Industrial Designers Society of America, 60 W. 55th St., New York, NY 10019. National Association of School of Art, 50 Astor Place, New York, NY 10003.

Film: "What Do you Mean by Design?" 16mm, color, sound, 12 min. (1973). Presents the ways in which design affects visual communications, interiors and industrial design. Stresses that the practical aspects of design can simplify production. Pay return postage and insurance. Book 3 months. National Gallery of Art, Extension Service, Washington, DC 20565.

Books: Design: A Creative Approach (1953), S. Emerson
Industrial Design (1954), H. L. Van Doren
Designing for Industry (1955), F. C. Asford
Art of Color and Design (1956), M. Graves

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Design and Development

Objective(s): Student will learn to measure and use drawing instruments. Student will will learn to use geometric drawings. Student will be able to do research then present the material on a graph. Student will be able to measure in English and metric measure.

Procedure: Have the students make a sketch of some product which might be made by whatever factory you are studying; then have this sketch drawn to scale to represent the actual product. If this item was small, it could be scaled to actual size.

Have the students to make some geometric designs which might be used to decorate some manufactured item.

A designer studies the market of products to see what type of design will sell, the student could do some research about the market of various products. After doing this research, graphs, (line, bar, picture, circle) could be made to illustrate the information.

A designer sometimes designs packages, the student could sketch some types of packages which would be convenient to haul on trucks. The student could then figure the length, width, volume, surface area of these packages in the English System of Measure and in the Metric System of Measure.

A furniture designer may be of interest to some students. A student could sketch designs of furniture, then draw scale models of it.

Resources and Materials:

Bring an item into the classroom which might be sketched.

Student creativity.
Books about design.

Information from factories.
Information from marketing sources. Catalogues of items which are sold.

Student sketches.
Rulers.

Film:
"Danish Design"
16 mm color sound 19 min. and
"D. . . FOR DESIGN"
16mm color sound 25 min.
Both films are about Danish furniture being designed. Pay return postage and $200 insurance. Book well in advance give alternate dates. ROYAL DANISH CONSULATE GENERAL 360 North Michigan Avenue Chicago, Illinois 60601

Evaluation:

Comments on use:

Hazel Hudson

VICE-PRESIDENT MAINTENANCE

This department is concerned with maintaining and repairing machinery, mechanical equipment, instruments, electrical equipment, etc.

Industrial Machinery Repairman

Maintain and repair machinery and other mechanical equipment used in a wide variety of manufacturing. Be quick to determine the cause of the trouble, make necessary repairs, and return the equipment to working order. May have to completely or partly disassemble a machine to repair or replace defective parts. After machine is reassembled, make necessary mechanical adjustments to insure its proper operation. Preventive maintenance, regular inspection of equipment, oiling and greasing machines, cleaning and repairing parts. May keep maintenance records of the equipment serviced. Often follow blueprints, lubrications charts, and engineering specifications in maintaining and repairing equipment. May use parts catalogs to order replacements for broken or defective parts. May have to sketch a part which may have to be made for a particular machine if one is not readily available.

Instrument Repairman

Installs and services the complex industrial and scientific instruments that measure, record, or control heat, electricity, pressure, flow of liquids, chemical composition and other variables.

Maintenance Electrician

Maintains and repairs different types of electrical equipment. Modifies and installs electrical equipment such as motors, transformers, generators, controls, instruments, and lighting systems used in industrial, commercial, and public establishments. Preventive maintenance--periodic inspection of equipment to find and repair defects before breakdowns occur. Replaces units or parts such as wiring, fuses, circuit breakers, coils, or switches. Must find and repair the faulty circuit or equipment quickly to prevent production losses. May connect wires by splicing or by using mechanical connectors. May measure, cut, bend, thread, and install conduits through which wires are run to outlets, panels and boxes. May adjust equipment controls and check and adjust instruments. Uses devices as test lamps, ammeters, volt-ohm meters, and oscilloscopes in testing electrical equipment and wiring. Sometimes works from blue prints, wiring diagrams, and other specifications. Uses math to determine current carrying capacities of electrical wiring and equipment.

RESOURCES

Write to: General Motors Corporation, Public Relations Staff, Detroit, MI 48202, "Precision--A Measure of Progress."

Films: "ABC of Hand Tools," 16mm, color, sound, 33 min. Pay return postage. General Motors Corporation, Public Relations Staff, Film Library, General Motors Building, Detroit, MI 48202.

"The Tools and Rules for Precision Measuring," 16mm, black and white, sound, 39 min. Pay return postage. Book 3 months in advance. The L. S. Starrett Company, Educational Division, 121 Crescent St., Athol, MA 01331

"Electrical Workers," 16mm, black and white, sound, 15 min. Shows the people involved in the electrical industry and describes jobs. Pay $3 rental fee and postage. Department of Audiovisual Extension, University of Minnesota, 2037 University Avenue, SE, Minneapolis, MN 55455.

Write to: Instrument Society of America, 530 William Penn Place, Pittsburg, PA 15200.

National Joint Apprenticeship and Training Committee for the Electrical Industry, 1730 Rhode Island Ave., NW, Washington, DC 20036.

Hazel Hudson

PERSONNEL DIRECTOR

This department comprises those activities of organizations that result in policies and programs for the leadership and direction of their employees. It is a field of human relations.

Personnel Workers

Attract and keep the best employees available, match them to jobs they can do effectively. They develop recruiting and hiring procedures, interview, test, check records, select, and recommend the ones they consider best qualified for the openings to be filled. They counsel employees, deal with disciplinary problems. They classify jobs, plan wage and salary scales, develop safety programs, supervise credit unions, and conduct research in personnel methods. The employee training, the administration of retirement and other employee benefits (such as hospitalization, pensions, etc.) and labor-management relation--including negotiation of agreements with union--are also important aspects of their work. May require frequent contact with employees, union representatives, job applicants, and other people in and outside the company. Supervises plant security and parking lot. Plans ahead as to the number and types of employees who will be needed 2 to 5 years ahead. Formulates personnel policy, advises other company officials on personnel matters and administers his department.

RESOURCES

Write to: New York Life Insurance Co., Career Information Service, Box 51, Madison Square Station, New York, NY 10010, "Should You Go into Personnel Work," by Cyrus Ching.

U. S. Department of Labor, Bureau of Labor Statistics, Occupational Outlook Service, Washington, DC 20210, "Business Administration and Related Professions," Occupational Outlook Briefs.

The American Society for Personnel Administration, 52 East Bridge Street, Bera, OH 44017

Films: "The Theory of Management Development," 16mm, black and white, sound, 25 min. For address of nearest film library: Educational Film Sales, Department of Visual Communication, University of California, Berkeley, CA 94704

"Personnel Management--Communications=" 16mm, black and white, sound, 14 min. For address of nearest film library. McGraw-Hill Text Bilms, 330 W. 42nd St., New York, NY 10036.

"A Question of Teamwork," 16mm, black and white, sound, 21 min. Pay return postage. Consulate General of Canada, Canadian Embassy, 1746 Mass. Avenue, Washington, DC 20036.

Books: Personnel Management and Labor Relations, (1958), D. Yoder.
Personnel Management and Industrial Relations, (1956), D. Yoder.
Personnel Administration, (1956), P. Pigors and C. A. Myers.
Personnel Management, (1955), C. H. Northcutt.
Personnel Management in Small Plants, (1955), A. W. Baker.
Personnel Management, (1954), W. D. Scott, R. C. Clothier, and W. R. Spriegel.

Hazel Hudson

Subject Area(s) Manufacturing

Unit(s) Personnel Director

Objective(s): Student will be able to multiply and convert hours to minutes. Student will become familiar with using blueprints. Student will be able to multiply and add decimal numbers. Students will learn that an electrician uses math.

Procedure:	Resources and Materials:
If a factory loses $20 of business for each 10 minutes of lost time for machinery breakdown, how much would be lost if there were 3 hours lost in breakdowns?	Teacher made problems
Student would look at some blueprints of various types of machines and drawings and learn to read a few of these, then the student could attempt to draw a few blueprints of various things.	Blueprints from local businesses
Use a parts catalog and order a group of various parts and fix out an order form with the total cost for all of the parts.	Order forms and catalogs from local businesses
Devise some math problems using the formulas to determine current carrying capacities of electrical wiring and equipment.	Textbooks Local electrician

Evaluation:

Comments on use:

Hazel Hudson

Subject Area(s) Mathematics

Unit(s) Manufacturing--Rival

Objective(s): Students will be able to gather, record, and present information; to make bar graphs; to make histograms; and to add integers. Students will be able to gather information. Student will be able to interpret road map. Students will be able to make permutations. Students will be able to subtract decimals. Students will practice making value judgments. Students will have experience in seeking information. Students will be able to write a check correctly. Students will see relevancy in math topics studied. Student will be able to find what percent one number is of another.

Procedure:

Pre-Field Trip Activities

Have students determine the number of Rival appliances in their homes. Have students list type of appliance, e.g., toaster, etc.

a. Use these lists to make a bar graph and a circle graph showing different kinds of appliances.
b. Use lists to make a histogram.
c. Find total number of Rival appliances in students' homes.
d. Have students find what percent the number of each appliance is of the total number of appliances.

Have students make a list of "math" questions to ask:

a. What is the pay scale?
b. How many different appliances are made in the plant?
c. How many persons are employed?
d. What was last year's total payroll?
e. What kind of mathematics do the employees need?

Post-Field Trip Activities

Make a map of Missouri showing the location of all Rival manufacturing plants in the state.

a. Show the most likely routes from the Sedalia plant to each of the other factories.
b. Determine the number of miles from the Sedalia plant to each of the others.

Resources and Materials:

Students' homes

Slide-tape field trip to Rival Manufacturing plant or field trip

Road map

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Rival, p. 2

Objective(s): Student will be able to add whole numbers or mixed numbers and to multiply this total by a decimal.

Procedure:	Resources and Materials:
A Rival official must go from the Sedalia plant to each of the others. The order of these visits is not important to his business. Show all the possible orders in which he could visit these plants.	Mathematics book containing section on permutations
Ask the students to "make-up" five problems concerned with Rival and its employees of its products.	
Small groups of students can visit different department stores and compare prices of Rival products and similar ones of other companies. Determine which is higher and how much higher.	Local department stores
Have each student choose a Rival product that he would like to buy, find the price at a specific store, and then write a check to that store for the amount of the appliance.	Film: "Paying by Check" Federal Reserve Bank of Chicago, Bank Relations and Public Information Dept., P.O. Box 34, Chicago, IL 60690
Make a list of mathematics skills needed for a specific job at Rival.	
Compare topics studied in mathematics this year to those skills needed by Rival employees.	
Determine number of members of immediate families of students who work at Rival. Find what percent this number is of the total number of Rival employees.	

Evaluation:

Comments on use:

Subject Area(s) **Mathematics**

Unit(s) Manufacturing--Rival, p. 3

Objective(s):

Procedure:

Make a payroll sheet where workers are paid by the hour and have students determine total wages.

Rival employs 660 persons in its Sedalia plant. If 30 of these employees are clerical workers, what percent of the work force are clerical workers? What percent are not?

Resources and Materials:

Teacher prepared work sheet

Information from field trip

Evaluation:

Comments on use:

Jewell Fowler

Subject Area(s) Mathematics

Unit(s) Manufacturing--Town and Country Shoe Factory

Objective(s): Student will be able to multiply and add decimals. Student will be able to find averages. Student will be able to divide by a decimal. Student will be able to add integers. Students will be able to make value judgments. Student will be able to subtract integers. Students will be able to write a fraction. Student will demonstrate his knowledge of century and decade. The student will be able to find what percent one number is of another. The student will be able to multiply by a decimal. The student will demonstrate his knowledge of work average.

Procedure:	Resources and Materials:
Pre-Field Trip Activities	
Small group ask principal and report to class the cost per mile of using school bus for the trip to the factory. a. Have class find total cost for round trip. b. Have students find average cost per student round trip.	School principal
Have each student ask his mother how many pairs of Town and Country shoes that she now has. Then find the total of pairs owned by students' mothers.	Students' mothers
Have students make up a list of "math" questions to ask: a. How often are workers paid? b. How is amount of pay determined--hourly rate or amount per piece done? c. How much is the payroll per pay period? d. Which high school mathematics class are most helpful to the employees? e. What kind of math questions are most often missed on the test given applicants? f. How many pairs of shoes are made daily? g. What is the maximum production? h. How many pairs of shoes were made last year?	
Post-Field Trip Activities The Sedalia Town and Country Shoe Factory was founded in 1943. How old is the factory? Its age is what part of a century? It has been in Sedalia how many decades?	Information from field trip or slide-tape field trip of Town and Country Shoes

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Town and Country Shoe Factory, p.

Objective(s): Student will be able to divide an integer into a decimal. Student will be able to find what percent less one number is than another. Student will be able to find what percent one number is of another. The student will be able to subtract numbers naming hours and minutes. The students will be able to see a practical use for geometric designs. The students will learn advantages and disadvantages of different solids for specific purposes. Students will learn that there is always error in measurement. Student will be able to use rules and find the volume of a rectangular solid.

Procedure:

Due to a shortage of materials, the Town and Country Shoe Factory had to go on a 4-day week for 4 weeks.

a. What percent of the regular 5-day week was the factory operating?
b. What percent of the regular 5-day week was the factory closed?
c. If you were working at the factory at this time and your earnings averaged $2.88 an hour, how much did you lose each day the factory was closed?
d. Assuming you would earn this same amount each hour during the 4 weeks, how much did you lose during these 4 weeks?

Find the yearly amount of the payroll based on the pay period average given by the plant guide.

Find the yearly average salary paid to each worker based on the number of employees of the company now and the yearly payroll from the activity above. Do you think that a family of four persons could live comfortably on this amount?

If the factory is now making 3700 pairs of shoes a day and the maximum daily production is 5000 pairs, how many pairs less than the maximum are they producing?

The factory is now making 3700 pairs of shoes a day and the maximum production is 5000 pairs daily.

Resources and Materials:

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Town and Country
Shoe Factory, p. 3

Objective(s):

Procedure:	Resources and Materials:
Their present production is what percent of the maximum production?	
Find what percent the persons hired this year is of the total work force.	Information gathered on field trip
Find--from encyclopedia or some other source--the number of shoes made in Missouri last year. Then find what percent of shoes made in Missouri last year were made in Sedalia at Town and Country.	Reference book
Ask a labor union representative to come to the classroom and explain why workers are better off with the union than without.	Representative from labor union
Determine how long the field trip took from the time the students left the classroom for the field trip until they returned to the classroom.	Classroom clock
Make geometric designs that could be used on the shoe boxes to make them more interesting and attractive.	
Try to design a box--or container--for a pair of shoes that would be better to store and ship shoes than the present rectangularly shaped one.	
Obtain shoe boxes from Town and Country Shoes for 5 different sizes of shoes for the following small group activities.	Empty Town and Country shoe boxes

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Town and Country
Shoe Factory, p.

Objective(s):

Procedure:

a. Have each group measure a box of each size and record the measurement. Give no instructions as to precision of measurement. Compare group answers.
b. Ask students to measure length, width, and height of each of the boxes to the nearest 1/8" or 1/16". Compare group answers.
c. Have each group find the volume of the shoe boxes using the measurements taken by his group.
d. Compare the volumes found by each group. Determine the difference between the greatest volume and the smallest volume, find the average volume found for each size box.

Resources and Materials:

Evaluation:

Comments on use:

Jewell Fowler

Subject Area(s) Mathematics

Unit(s) Manufacturing--Lamy Manufacturing Company

Objective(s): The student will be able to find what percent one number is of another. The student will be able to plan his activities. Student will be able to multiply by a fraction and a decimal. Student will be able to divide, subtract and multiply integers. Students will be able to find the percent of increase. Students will be able to find the percent of a number. Students will be able to divide an integer into a denominate number. Students will be able to multiply by a decimal. Students will demonstrate their knowledge that there is 100% in a whole.

Procedure:

Pre-Field Trip Activities

Two days before the trip ask each student to count the number of Levis worn by classmates in his first hour class. What percent of "jeans" worn in his first class were Levis?

Have the students make a list of math questions to ask:

a. How many people work at Lamy's?
b. How is their pay determined?
c. How many pairs of Levis are made in a day?
d. How old must I be before you would hire me?
e. Can a man or woman make enough here to support a family? Are most of your workers the sole support of their family?
f. Are there any special math skills needed for a job here?
g. What are the chances for promotion?
h. About how many people are hired each month?
i. What part of your workers are women?

Post-Field Trip Activities

One third of the 375 Lamy employees live outside Sedalia. How many employees of Lamy live in Sedalia?

If the Lamy plant works a 5-day week with 11 paid holiday (no workers), how many days is the plant operated each year? If 8000 pairs of Levis are made each working day, how many pairs are made in a year?

Resources and Materials:

Classmates

Information gathered on field trip or from slide-tape of field trip to Lamy Manufacturing

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Lamy Manufacturi
Company, p. 2

Objective(s): The students will be able to multiply by a mixed number. Students will be able to divide by a two digit integer. The student will be able to change yards to feet, to inches, and to meters. Students will be able to change minutes to hours. Students will have found a practical use for geometric shapes. Students will be able to use a ruler. Students will be able to draw to scale. Student will be able to interpret road maps. Students will have practice in decision making. The students will learn of the value of fringe benefits.

Procedure:

If the zipper for a pair of Levis has increased in price from 15 cents to 37 cents, what is the percent of increase for the zipper?

The Lamy plant employs 375 employees. If there is a 6% turnover each month, how many new employees does the plant have each month?

If it takes 3 hours and 20 minutes to make 12 pairs of Levis, what is the average length of time needed to make on pair of Levis?

Of Lamy's 375 employees, 93% are women. What percent are men? How many women are employed by Lamy's? How many men?

In cutting out the Levis, 92% of the material is utilized. The rest is sent to a paper manufacturing company.

a. What percent is sent to the paper company?
b. Out of 5000 yards, how many yards would be utilized in the manufacture of Levis? How many yards would be sent to the paper company?

If 8000 pairs of Levis are made each day and if the company has storage facilities for 3½ days production, how many pairs of Levis can be stored at the factory?

Resources and Materials:

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Lamy Manufacturing Company, p. 3

Objective(s): Student will be able to add and subtract numbers naming times. The student would demonstrate his knowledge of our money system. Student will be given practice in making decisions based on information gathered.

Procedure:

The Levis are packed 24 pairs to a box. How many boxes are needed to pack the 8000 pairs made in one day?

Each cutting table is 52 yards long. How many feet long is the table? How many inches? About how many meters?

Lamy employees have two paid 10 minute "breaks" a day.

a. How many hours is this if each of the 375 employees take the two 10 minute breaks each day? How many hours for a 5-day week?
b. If the average hourly salary for the employees is $2.75 how much does Lamy's pay per week for "breaks"?

The parquetry floor of the original office building has been left on the factory floor. You design a parquetry floor. Do not make the floor entirely of rectangular shapes. Draw one square yard of your floor to scale. Be sure to state your scale.

If a new technique has been perfected that will take 1/100 of a minute in making a pair of Levis, how many minutes would be "saved" on the 8000 pairs made in one day?

All the Lamy factory products are shipped to either Florence, Kentucky or to San Jose, California.

a. Make a map of the U. S. and show these two

Resources and Materials:

Resource material on parquetry floors

Evaluation:

Comments on use:

Subject Area(s) **Mathematics**

Unit(s) **Manufacturing--Lamy Manufacturin**
Company, p. 4

Objective(s):

Procedure:

places and Sedalia, Missouri.

b. Study road maps and decide the way you think is best to go from one of these places to the others. Show these roads on your map. Label these roads. Determine the number of miles between these places. Show this on your map.

Ask the students to describe the workers manner of working--was it easy and relaxed or was everyone hurrying? Why were the workers working in this manner?

Why would the company rather have one person who worked fast enough to earn $5 an hour than two workers that earn $2.50 an hour?

Prepare an exercise using "time cards." Tell when the worker clocked in when he came to work in the morning and when he went out at lunch. Show his clock in time after lunch and his clock out time when work was over. Ask student to determine the time worked each day.

Prepare a work sheet that is a chart listing the worker's name and his net pay. His pay envelope is to contain the fewest pieces of money possible. Ask the students to determine the exact bills and coins that would be in each worker's pay envelope.

Ask the student to list 3 reasons that he would or would not like to work at Lamy's.

Resources and Materials:

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Wire Rope Plant

Objective(s): The student will be able to collect information. The student will be able to make a graph. The student will be able to add integers. The student will be able to make a histogram. The student will be able to subtract decimals. The student will demonstrate his knowledge of 100% being a whole. Student will be able to change a fraction to a decimal. The student will be able to subtract decimals. Students will be able to find the percent of increase. Students will be able to add and divide by a decimal.

Procedure:	Resources and Materials:
Pre-Field Trip Activities Wire rope production works with aluminum. Make a graph showing the 5 bauxite producing areas in the world.	Reference book--encyclopedias
Find out how many students have this company's employees for relatives. Compare this number with the number of relatives working at Rival, Lamy, and Town and Country Shoes. a. Which company employs more of the students' relatives? b. These 4 companies employ how many of the students' relatives? c. Make a histogram showing the number of students' relatives employed at these 4 plants. d. Make a bar graph or a circle graph showing the number of relatives employed by the 4 plants.	Student information
Make a list of math questions to ask at the plant. These questions would include the number of employees, hours worked, number of shifts, salary, math skills needed, etc.	
Post-Field Trip Activities The aluminum wire that this plant receives as its raw material is 99.9% pure aluminum. What percent is not aluminum?	Information gathered at the plant
Machines at this plant can "pull" the aluminum wire from a diameter of 3/8" to .005". What is the	

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing--Wire Rope Plant,

Objective(s):

Procedure:

difference between these numbers?

The starting salary at this plant is $550 a month before certain fringe benefits are added. After an employee has worked 9 months, his salary is $650 a month plus the same fringe benefits. An increase from $550 to $650 is what percent of increase?

The thickest aluminum cable made at this plant is 1.87 inches in diameter and the thinnest aluminum wire is .005. The thickest cable is how many times as large as the thinnest wire?

The aluminum wire used as the plant's raw material lists at 38.5 cents a pound. There are 4000 pounds of aluminum on each spool. How much would 25 spools of this aluminum cost the plant at list price?

This plant employs 200 persons. Nine women work in the office and four work in the factory itself.

a. How many employees are men?
b. The number of women is what percent of the number of employees?
c. The number of women is what percent of the number of men?

A beginning worker has a salary of $550 plus $18 because he works on shifts plus 12½% of his salary for the work done on Sunday. What is the beginning

Resources and Materials:

Evaluation:

Comments on use:

Subject Area(s) Mathematics

Unit(s) Manufacturing - Wire Rope Plant, p. 3

Objective(s):

Procedure:

workers' total salary?

This plant can make 75,000 feet of a certain kind of wire in 8 hours. This is an average of how many feet of this wire an hour?

This plant can make 75,000 feet of one kind of wire in an 8 hour period. How many miles of wire is this? Express the remainder in a fraction in lowest terms.

Resources and Materials:

Evaluation:

Comments on use:

Jewell Fowler

PAYROLL ACTIVITY ONE

ACTIVITY--Students will work a series of payroll sheets designed to simulate pay-by-the-piece.

RESOURCE--Teacher prepared worksheets.

OUTCOME--The student will be able to add fractions.
The student will be able to multiply by a decimal.
The student will understand the concept of the amount of pay being determined by his work.

INSTRUCTIONS FOR ACTIVITY

1. Divide the class into "factories" of 10 or so workers.

2. Prepare a payroll sheet similar to the one below using actual names of your students as the workers. On the initial payroll sheet all workers receive the same rate. The scale for the next project is below the payroll chart. Distribute sheets to workers in the factory.

3. Example of initial payroll sheet.

PAYROLL FOR BUD'S SPEEDY AUTO REPAIR SHOP

NAME	M	T	W	TH	F	S	TOTAL HOURS	RATE	WAGES
Larry	6	5½	7	8	7½	4		$1.89	
Jackie	8	8	8	8	8	4		$1.89	
Rosie	8	8½	6	8	7½	5		$1.89	
Ruth	7	8	9	7	8½	4½		$1.89	
Jill	7	7½	7	8	7½	7		$1.89	
Suzie	8	6½	8	7	6½	4½		$1.89	
Eddie	7½	7½	6	9	5	5		$1.89	
Terry	8	9½	5	7	8½	3		$1.89	
Mark	7	8	9	9	8	3		$1.89	
Patti	8½	8½	7	8	6	6		$1.89	
TOTALS									

Pay Scale for Next Project

$1.50 for 0 through 13 correct answers
$1.89 for 14 through 18 correct answers
$2.17 for 19 through 23 correct answers
$2.45 for 24 through 28 correct answers

4. Collect payroll sheets after students have completed them.

5. Check the payroll sheets and count the number of right answers on each student's paper.

6. Prepare the next payroll sheet in the series similar to the one above. Be sure to "give" each worker the wage he has "earned" by the number or right answers on the worksheet.

7. The project can be continued as long as the students' interest lasts.

PAYROLL ACTIVITY TWO

ACTIVITY--Students will work a payroll sheet and use the answers as a basis for some decision making.

RESOURCE--Teacher prepared worksheet.

OUTCOME--The student will be able to add integers.
The student will be able to multiply a decimal by an integer.
The student will be able to divide integers.
The student will be able to make decisions based on the facts available.

INSTRUCTIONS FOR ACTIVITY

WORKER	AVERAGE NUMBER ITEMS PER HOUR	HOURS	RATE PER HOUR	NUMBER OF ITEMS PER WEEK	WAGES
Jones	169	40	$2.10		
Wilson	201	40	$2.10		
Jackson	117	40	$2.10		
White	83	40	$2.10		
Wheeler	185	40	$2.10		
Taylor	300	40	$2.10		
Dunn	249	40	$2.10		
Deere	75	40	$2.10		
Klopper	290	40	$2.10		
Martin	69	40	$2.10		
TOTALS					

1. What do you notice about the pay in this factory?____________________
2. Does everyone do the same amount of work?____________________
3. If this was your factory and you had to fire three workers, which three would you fire?____________________ Why?____________________
4. You plan to offer one worker a raise. Which worker do you choose?____________________ Why?____________________
5. Divide the total number of items by the total number of hours worked to find the average number of items per hour. What is this average?____________________ Which workers are above the average?____________________
6. Do you think the pay scale on this payroll sheet is "fair"?____________________ Why?____________________

Subject Area(s) Social Studies

Unit(s) Manufacturing

Objective(s):

Procedure:	Resources and Materials:
Have students prepare a list of 50 items produced in America.	Local store owners, parents, students' general knowledge
Compare and contrast the following, giving examples from your local area: a. private ownership b. partnerships c. corporations	Text, Our World's Heritage, Search for Freedom Pamphlets, "How to Own Your Business," "Forming Partnerships," "The Corporation and You"
Compare the standard of living in industrialized nations to that of non-industrialized nations.	
Draw or construct a model of the typical 18th century home and one of the typical home of present day. Take into consideration all appliances of both time periods.	Magazines, Better Homes and Gardens, Interior Decorating Film, "The Colonial Home"
Make a list of items that are purchased today which were produced in the home of earlier time periods.	
Role play an assembly line, constructing a small item in class.	Slides of Rival, Town & Country, Lamy's,
Show slides of assembly line production in a local industry.	

Evaluation: The students will become aware of the process of manufacturing and will gain an understanding of how it improves and alters our worlds of work, leisure, and family.

Comments on use:

Alan Meyer

Subject Area(s) Social Studies

Unit(s) Communism vs. Capitalism

Objective(s):

Procedure:	Resources and Materials:
Have the students write a short research paper on communism and capitalism with special emphasis on the theories of each. Follow up with a panel discussion.	Text, Search for America Communist Manifesto
List communist countries of the world. List capitalist countries of the world.	Textbooks, map of the world
Role play life under a communist economy, looking especially at the following areas: a. job opportunities b. job selection c. job mobility d. standard of living e. working conditions f. employee rights g. unemployment	Films, "Life in the Soviet Union" "The Soviet Worker's Day" "The Role of Labor in America"
Role play life under a capitalist economy, emphasizing the same areas as listed above.	Magazines, Wallace's Farmer, American Farmer, Farm Journal Film, "Farming in Russia"
Compare capitalistic ownership to communist ownership.	American Electrical Industries, Industrialization of China
Compare a collective farm in Russia to a farm in America.	

Evaluation: The student will be able to identify the main differences between a capitalistic and a communistic state.

Comments on use:

Alan Meyer

Subject Area(s) Social Studies

Unit(s) Unions

Objective(s):

Procedure:	Resources and Materials:
Have the students research a report on unions explaining their role in the world of work. Have them make a list of familiar terms connected with unions.	Text, Search for Freedom, Our American Heritage
Invite a spokesman from a local union to talk with your class about the benefits of unions in our society in such areas as salary, working conditions, etc.	Local union (check your yellow pages) Rival Manufacturing, Bill Hall Town & Country, Charles Rayl Lamy, John Pelham American Electrical Industries, Russ Woodyard
Invite a representative of a non-union company to speak to your class about the values of an open shop.	
Have the students prepare a chart on the growth of union membership.	The Growth of Unions
Role play a strike: a. Draw up a list of demands and grievances. b. Select union spokesman to represent the union. c. Select a group of students to represent management. d. Draw up demands management is willing to accept.	Teacher directed, student participation. Speech and drama or English teacher.
Study the unionizing process of a company: Students invite union spokesman to explain how to form a union in a company and to point out benefits of a union.	Union pamphlets and materials Labor in America, a History, by Foster Dulles
In a panel discussion, compare and contrast a company union to a labor union.	

Evaluation: The student will become totally familiar with the origin and development of unions. He will realize the impact of unions upon the world of work and why unions find it necessary to strike. The student will also realize the advantages as well as the disadvantages of unionized labor.

Comments on use:

Alan Meyer

Subject Area(s) Social Studies

Unit(s) Raw Materials

Objective(s):

Procedure:	Resources and Materials:
Have the students make a list of 10 raw materials.	Text, Our Heritage
Show slides from American Electrical Industries illustrating raw materials being made into a finished product.	Slides of American Electrical Industries
Have the students research a raw material and trace the process it goes through to become a finished product; for example, the refinement of oil into gasoline.	Film, "The Oil Industry"
Class discussion on how raw materials are formed.	Teacher and students State Highway Department
Invite a geologist to class to explain how raw materials are found by industry.	
Have the students write a paper on how America can conserve her natural resources.	Books, magazines, records, etc.

Evaluation: The student will understand the vital importance of proper use and conservation of raw materials by our society.

Comments on use:

Alan Meyer

Subject Area(s) Social Studies

Unit(s) Industrial Benefits to a Community

Objective(s):

Procedure:

Invite a spokesman from a local company into your classroom to explain why his company chose to locate in your area. Examples: In Warsaw--Unitog

Have the county collector talk to the class, pointing out the amount of taxes paid to a community by an industry.

Resources and Materials:

Plant manager

Evaluation:

Comments on use:

Alan Meyer

Subject Area(s) **Social Studies**

Unit(s) **Field Trip to Rival Manufacturing Company and Town and Country Shoes**

Objective(s):

Procedure:	Resources and Materials:
Prepare a history of electrical products in the U.S.	Textbook, field trip and research materials
Prepare a chart showing the product in its raw form, showing the various steps to the completed form.	
Also, show the cost of each process of manufacturing to show the completed cost--then compare it to the consumer price. Explain the concept of the profit margin, capital gain and the consumer index. Also show how the government today controls the safety factors and the profit margins of these companies. (Take one product from T & C or Rival)	
Make a list of materials used to process the manufactured product--find where in the U.S. these materials are located.	
Write a history of women in industry and business.	
Describe the labor union set up at each industry. Is it an open or closed shop? Describe your feelings toward joining a union if you were to go to work at one of these places.	American history text, research material

Evaluation: Student will be aware of the ease with which we live today because of these products and the importance of their effect on the market and financial community in America. Student will have the idea of each step in the assembly reinforced. Student will be aware of some of management's problems as well as why the product costs so much more on the stores' shelves than it does in the factory. Student will also gain some insight into the importance of government regulations. Will acquaint the student with products of geographical areas in the U.S.

Comments on use:

Marcia Turner

Subject Area(s) Social Studies

Unit(s) Field Trip to Lamy Manufacturing Company

Objective(s):

Procedure:	Resources and Materials:
Pre-Trip Activities	
Brief introduction incorporating a history of the assembly line and its uses and an explanation of the Lamy Company and its products.	
See a film on the development of the clothing industry in America.	Film "To Clothe a Nation" National Association of Manufactur ing, Modern Talking Picture Servic 2323 New Hyde Park Road, New Hyde Park, NY 11040
Post-Trip Activities	
Write a historical essay based on a history of the Levi-Strauss Company and its association with Lamy's.	Field trip and research material
Describe the role of blue jeans in American history from the old west to present day times.	
Describe the use of all the products at Lamy's. What happened to the scraps? What problems were being encountered in the use of cotton?	Film: "The Road Ahead" "Cotton Defoilation" Chevron Chemical Co. Modern Talking Picture Service 2323 New Hyde Park Road New Hyde Park, NY 11040

Evaluation: The student will become aware of the importance of the assembly line in American History. The student will become familiar with the steps to making cloth and clothing. The student will be aware of the background of a company by which he may be employed. The student will see the varied role of blue jeans and how its function has changed through time. Also, he will gain an awareness of how the product is used.

Comments on use:

Marcia Turner

Subject Area(s) Social Studies

Unit(s) Field Trips to Town and Country
and Rival Manufacturing Company

Objective(s):

Procedure:

Pre-Trip Activities

Introductory lecture on job opportunities--this is to include the factory phase, types of jobs, opportunities, training and requirements.

See films reinforcing the ideas of industrial positions.

Basic lecture on the products made at Town and Country and Rival Manufacturing Company.

Post-Field Trip Activities

Construct a graph comparing the workers benefits from both factories. Include: qualifications, wages, scales, hospitalization, vacations, sick leave, and other fringe benefits, as well as working hours and available jobs.

Prepare job descriptions of various available jobs at each factory. Example: Pattern cutter, piece welder, etc.

Resources and Materials:

Film: "Another Step Up"
Westinghouse Corporation,
Visual Communications Dept.,
Westinghouse Bldg., Gateway
Center, Pittsburg, PA 15222
"World of Automated Assembly"
Gilman Engineering & Mfg. Co.
305 West Delavan Drive
Janesville, WI 53545
"Quality at Your Feet" Cor-Rel
Communications Co., 5316 Pershing
Ave., St. Louis, MO 63112

Evaluation: The student will become familiar with the factory situation. This will reacquaint the student with the various jobs in a factory as well as initiate the idea of government and industrial participation in job training. The student will be able to compare the benefits and drawbacks of both factories. The student will gain a basic idea of the types of jobs that will be given to the graduating student or beginning worker.

Comments on use:

Marcia Turner

Subject Area(s) Social Studies

Unit(s) Town and Country and Lamy Manufacturing Co. (con't.)

Objective(s):

Procedure:

Prepare a brief description of the qualifications needed to apply for jobs at Town & Country and Lamy's.

Compare in a chart the job turnover each factory encounters. Perhaps, from your observations, the student can explain why it exists.

Fill out a completed job application form.

Describe the system of promotions used at T & C.

Using the occupation guide, prepare a list of the various types of factory jobs and their average earnings; then compare that to the earnings of comparable positions in Sedalia.

Make a chart showing all the products made by Lamy Manufacturing Company.

Explain the method of checking defaults in the products. Why would this be profitable in the end?

Explain whether you would rather work by the hour or by the piece.

Resources and Materials:

Occupational Handbook

Evaluation: Student will know whether he meets the requirements. The student will become aware that many people voluntarily change jobs and the reasons behind some of the changes. Student will learn how to best present his qualifications. Student will learn how to go about advancing oneself in the job and the necessity of staying with a job in order to promote one's position. The student will gain a knowledge of how this area compares in living standards to more and less populated areas. Student will become aware of what actually is produced in Sedalia.

Comments on use:

Marcia Turner

Subject Area(s) Social Studies

Unit(s) Lamy Manufacturing Company (con't.)

Objective(s):

Procedure:

Explain the great importance of the computer in programming the sizes and numbers of jeans to be made.

The problem was mentioned that labor was short and thus companies had trouble keeping full employment. Write a paper describing how you would go about trying to "sell" a person on going to work for Lamy's and then how you think improvements could be made to keep employees after they get the job.

Resources and Materials:

Evaluation: The student will recognize the necessity of the computer in modern businesses. The student will encounter some problems that managements face, as well as being able to make some pertinent suggestions on how to improve some working conditions.

Comments on use:

Subject Area(s) Social Studies

Unit(s) Field Trip to Lamy Manufacturing Company

Objective(s):

Procedure:

Pre-Trip Activities

Lecture describing the operation of Lamy's and the types of jobs.

See films to acquaint one with the clothing industry.

Post-Trip Activities

Write a paper describing the making of jeans from the cloth to the finished product.

Explain why you think there were so many women employed at Lamy's in relation to men.

Why was utilization of all the products particularly important to the Lamy Company?

Describe the techniques involved in using and laying out the patterns. Describe the design of a pattern and the emphasis on the maximum use of material.

Resources and Materials:

Film: "Textiles in the Making"
Association-Sterling Films,
512 Burlington Ave., LaGrant, IL
60525

"To Clothe a Nation" National Association of Manufacturing,
Modern Talking Picture Service,
2323 New Hyde Park Road, New
Hyde Park, NY 11040

Evaluation: The student will become aware of the operation and the jobs and their requirements. The student's ideas of the textile industry and its requirements will be reinforced. The student will know the varying steps in assembly line work. The student will become aware that women also have a place on the assembly line. This wil make the student interested in utilization of all the products as well as an interest in the ecological balance of industry. This will give the student a working knowledge the job.

Comments on use:

Marcia Turner

Subject Area(s) American History

Unit(s) Field Trip to Rival Manufacturing Company and Town and Country Shoes

Objective(s):

Procedure:

Pre-Trip Activities

Discuss the idea of factory workers and their jobs, incorporating the idea of students of what those jobs entail.

Describe the various jobs available in today's factories and compare those to factories in previous years. (lecture)

Post-Trip Activities

Prepare a history of the changing methods of automation--beginning with the early 1900's and continuing to present day. (in the U.S.)

Resources and Materials:

Film: "Change for the Better" Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, NY 11040 "The 200 Million" Modern Talking Picture Service (see above) "Labor and Education" Amalgamated Meat Cutters and Butcher Workmen of North America Department of Education, 2800 Sheridan Road, Chicago, IL 60657 Field Trip, American History Text, Research Materials. "Why the Shoe Fits" Educational Progress Service, Brown Shoe Company, St. Louis, MO "Quality at Your Feet" Cor-Rel Communications, 5316 Pershing Ave., St. Louis, MO 63112

Evaluation: The student will become aware of the modern factory system. The student will become aware of the changes in the American factory system and the ability of schools and the government to help potential workers find the right job. The student will be aware of the improved conditions of the present day worker and the improved methods for better and more economical production in the U.S.

Comments on use:

Marcia Turner

Subject Area(s) Contemporary Issues

Unit(s) Field Trip to American Electrical Industries

Objective(s):

Procedure:

Pre-Trip Activities

Introduce the company and its products to the students, in order to acquaint them with the types of jobs available here.

Explain the process in manufacturing these electrical cords.

Post-Trip Activities

Explain the safety factors employed by American Electrical Industries.

List the different types of wire made and their uses. (briefly)

Explain the necessity for meeting the underwriters laboratory approval. What were the tests that were being made? How effective do you think those were? Why do you think the company had to meet these standards?

Resources and Materials:

Film: "Electronics: The Career that Serves" Bell and Howell Schools, Sales Dept., 4141 Belmont Avenue, Chicago, IL 60641

Film: "Extra High Voltage Cables" Reynolds Metals Co., Motion Pictures Service, Box 27003, Richmond, VA 23261
"Aluminum Building Wire Installation" Association-Sterling Films, 512 Burlington Ave., LaGrange, IL 60525

Evaluation: The student will be able to understand what type of job will be open to him. The student will understand the types of products made in this factory. Student will understand the necessity of being careful in working with machines of this intense heat. Student will become acquainted with the varied areas this company serves. Student will know the importance that this particular product be of the finest quality. Also, the student will become acquainted with the standards of the underwriters laboratory.

Comments on use:

Marcia Turner

Subject Area(s) ____________________

Unit(s) American Electrical Industries (con't.)

Objective(s):

Procedure:

What jobs were opening up in the next few years? Explain why this factory had very few job turnovers. What were the benefits in workers in this area?

What requirements were needed to work at American Electrical Industries? How was training received? What was the ratio of men to women? What was their accident ratio? What were their shifts in hours? Their production level?

Resources and Materials:

Evaluation: Student will compare this type of job with others that he has come in contact with. Student will have ideas reinforced on job requirements explained to him at the factory and will be able to decide if he meets those requirements.

Comments on use:

Marcia Turner

Subject Area(s) Economics
Field Trip
Unit(s) American Electrical Industries

Objective(s):

Procedure:	Resources and Materials:
Pre-Trip Activities Explain the products made at this company and the economic effect of it on the area of Sedalia (how many it employs, etc.)	Film: "The Electronic Stock Market" National Association of Securities Dealers, Inc. 1735 K. St. NW, Washington, DC 20006
Introduce the ideas that not all companies in America are owned by Americans and the system that companies use to gain money through the issuance of stock.	
Post-Trip Activities List the companies that own American Electrical Industries, then research the percentage of foreign owned companies in America. Do you think this is good or bad for the American economy? Why or why not?	Field trip and government publications, research material
Figure problems on overall production. Example: 8000 ft. of wire produced in one minute--how many in an hour--how many in a day? Figure this on the number of working hours and the number of shifts a day. How does this company's production depend on other factories?	
Explain why American Electrical Industries is not hiring as much.	Field trip
Explain the systems of promotion.	Field trip

Evaluation: To acquaint the student with the company. The student will become acquainted with stock procedures. The student will become aware of the system of investments in the U. S. Student will be aware of the amount of wire that can be produced and the interdependence of the American business market. Becoming acquainted with the problems of management. The student will be able to judge his ability to move up in the business world.

Comments on use:

Marcia Turner

Subject Area(s) Economics

Unit(s) Field Trip to Lamy

Objective(s):

Procedure:

Pre-Trip Activities

Brief introductory lecture on the products and requirements of the Lamy Company.

An introduction of the idea of the necessity of clothing production in the U. S.

Post-Trip Activities

Explain why the "manufacturers" dream is to be able to make the same product for 20 years.

Make a graph showing the progress of blue jeans from beginning to end. In that chart, make estimated costs for each pair of jeans at each phase of production. Thus be able to make a computed cost for each pair when completed.

Explain the guarantee Levi-Strauss Company gives each pair of jeans. Explain why making a "first class" product that is guaranteed is cheaper for the company in the long run, although it may cost more to manufacture.

Explain by use of a graph the number of jeans made in the day and the number of workers needed. Show this by day, month and finally by year.

Resources and Materials:

Film: "To Clothe a Nation"
National Association of Manufacturing, Modern Talking Picture Service,
2323 New Hyde Park Road, New
Hyde Park, NY 11040

Field trip

Evaluation: The student will become aware of the type of company he is visiting. The student will be familiar with the steps of production of this industry. The student will become acquainted with the managerial position. The student will be able to see the cost as well as the necessity of a company to keep the cost of production of the jeans to a minimum. The student will become aware of the long range goal of profit and management. The student will become aware of the worth of the individual worker and his ability by the company.

Comments on use:

Marcia Turner

Subject Area(s) Economics

Unit(s) Field Trip, (con't.)

Objective(s):

Procedure:	Resources and Materials:
Explain why American Electrical Industries found it more beneficial to buy cord rather than make it. Will this situation be changing now? Where was its source of aluminum? How did revolutions in South America affect the company's production level?	Field trip
What places are the different cords used? How does their production alter or affect the rest of the American economy?	Field trip

Evaluation: Student will see the interdependence of the company on outside factors--foreign nations, raw materials, oil shortages, government regulations--in short many of the problems that management faces. Student will see how this one company can stop production of businesses or make costs so prohibitive or so cheap that building may increase or completely stop.

Comments on use:

Subject Area(s) Economics

Unit(s) Field Trips to Rival and Town & Country Shoes

Objective(s):

Procedure:

Pre-Trip Activities

Discuss the problems of labor, management, and the consumer.

Resources and Materials:

Film: "Inflation: On Wages and Prices Running Amok" Cost of Living Council, Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, NY 11040

"Credit" Aetna Life and Casualty Co., Public Relations and Advertising Department, Film Library, 151 Farmington Ave., Hartford, CT 06115

Post-Trip Activities

Prepare a chart of labor's salaries in the various jobs--compare this to the national average salary making comparisons illustrating the cost of living in Sedalia vs. the national average.

Prepare a budget based on the average take home pay of one of the jobs at the factory.

Prepare a budget of manufacturing a product for sale, include the cost of raw materials, wages, distribution and profit margins--thus cost-price theories must be involved in this project. Show how products can be interrelated. Example: Does any part of a product go into another product? How does this increase/decrease cost factors?

Field trip information and sources of national publications of income figures

Film: "Budgeting" Aetna Life and Casualty Film Library, 151 Farmington Ave., Hartford, CT 06115

Film: "Marketing and Distribution" and "Manufacturing" Westinghouse Filmstrips, Visual Communications Dept. Westinghouse Bldg., Gateway Center, Pittsburg, PA 15222

Evaluation: The student will become aware of the problems of companies and consumers. The student will become more interested in the needs his income must meet and the economic system of the U. S. The student will be able to make an economic comparison of the living requirements of various geographical areas. The student will learn the wise use of money and how it must be allocated. The student will become aware of the reason for the different cost of products--from the wholesale to the consumer price.

Comments on use:

Marcia Turner

Subject Area(s) Social Studies

Unit(s) Environment

Objective(s):

Procedure:	Resources and Materials:
The students will write an essay on his or her environment and their relationship to it.	Newspapers, magazines
Draw an illustration to show how pollution can upset the balance of nature. **Examples:** an oil slick chemicals killing fish in streams pesticides, herbicides noise pollution	Teacher directed
Invite local conservation agent in to speak to class.	Cal Christiansen
Invite industry representative from Rival Manufacturing to explain how his company fights pollution.	Bill Hall
Organize, advertise, and participate in a clean up of the school grounds or city park.	Teacher directed school, city park officials.
Field trip to areas of pollution.	Polluted area

Evaluation:

The students will see the role they play in their environment and the importance of not polluting the environment.

Comments on use:

Alan Meyer
Wes Rinnan

Subject Area(s) Social Studies

Unit(s) Advertising

Objective(s):

Procedure:

Write a paragraph on what advertising is to them.

Have the students bring in an advertisement and discuss what it's saying.

List different types of advertisement.

Invite a member of an advertising agency to speak.

Invite in an advertising representative of the following companies.
a. Rival
b. Town & Country
c. American Electrical Industries
d. Lamy's

Students to write up an advertisement of any product.

Resources and Materials:

Text: Search for America

Newspapers, magazines

Understanding Advertising

Bill Hall
Charles Rayl
Russ Woodyard
John Pelham

Evaluation:

The students will gain a working understanding of the relationships of advertising and manufacturing plus the different types of advertising and the way it influences our decisions in purchasing products.

Comments on use:

Alan Meyer
Wes Rinnan

Subject Area(s) Social Studies

Unit(s) Automation

Objective(s):

Procedure:	Resources and Materials:
Students write a short paragraph on what they think automation is.	Teacher directed
Short research paper on the Industrial Revolution (causes and effects)	Encyclopedia's; Americas other Revolution, text, Our World Heritage, Search for Freedom
Make a list of inventors and inventions. Give examples of the major inventions that have completely changed our way of life and world of work.	Text
Field trips to area industries noting the variety of machines and their importance to that industry.	Rival, Town & Country, Lamy's, American Electrical Industries
Class discussion on the effect of automation on jobs. Give examples of jobs taken from man by the machine and jobs given to man by the machine.	Text
Students to write a story about machines of the future.	Teacher directed, student imagination

Evaluation:

For the student to realize the full impact of the machine age on our world of work, leisure and family. Our overall dependence upon machines from their development to today and in the future.

Comments on use:

Alan Meyer
Wes Rinnan

MANUFACTURING/SCIENCE

Subject Area(s) Science

Unit(s) Industry

Objective(s):

Procedure:	Resources and Materials:
Discuss the metric system's usage in manufacturing.	
Bring in a resource person who uses various tools and machines involved in industry.	School shop teacher Plant worker
Make a list of area industries.	Telephone directory
How do these industries benefit the community?	
Discuss scientific principles that might be used by industry.	Basic Hydraulic Principles, 1972
Invite a representative of an area industry to discuss various presses and machinery that his company uses.	Slides of daily plant operations. Science, Technology, and Society

Evaluation: Realization of importance of the metrics system and practical applications to everyday life. Familiarize students with the type of industries and see how they are important to the well-being of the community. To show that science is the basis on which industry is built.

Comments on use:

Bob Chaney

Subject Area(s) Science

Unit(s) Petroleum

Objective(s):

Procedure:	Resources and Materials:
Discuss the role of petroleum in manufacturing.	
Assignment of researched reports on the cause and effect of the recent energy crisis. Follow up the reports with a class discussion based mainly upon factual material presented.	Newsweek, Reader's Digest, Current Science, Time, U. S. News and World Report, Wall Street Journal, AP & UPI
Discuss the effect of the enrgy crisis on local industry.	Local industry representatives
Discuss the future of industries that depend on petroleum-derived products to manufacture their goods.	Local industry representatives Watch for related articles appearing in current magazines.

Evaluation: Students will become aware of how dependent we are upon petroleum. Allow students to express themselves on the energy crisis once they have a better understanding of available facts. Make students aware that the energy crisis affects them as well as others. Interest students in staying informed about current world happenings.

Comments on use:

Bob Chaney

Subject Area(s) Science

Unit(s) Safety

Objective(s):

Procedure:	Resources and Materials:
What safety measures are implemented in these industries?	Plant supervisor and union leader The Color of Danger, 16mm, 1970
Have students list instances that should be covered by company insurance policies.	
Invite area representatives to discuss their company safety programs. Also, explain company health benefits such as hospitalization, etc.	Plant representative

Evaluation: Makes students aware of present safety standards. To help students determine whether or not a job offers enough safety measures and health benefits.

Comments on use:

Bob Chaney

Subject Area(s) Health

Unit(s) Safety

Objective(s):

Procedure:	Resources and Materials:
Show the students slides from Rival, Lamy's, American Electrical Industries, and Town & Country. Point out the protective shields, glasses, hearing plugs, etc.	Rival, Lamy's, Southern Electrical Cable Company, Town & Country Manufacturing.
Invite an industry representative in to describe the safety measures taken by his company and to explain how companies lose money when accidents occur.	Russ Woodyard, American Electrical Industries Jim Houchens, Rival
Invite a member from O.S.H.A. to speak to the students on the safety requirements they require industry to have.	O.S.H.A. office Fed. Gov. Agency Kansas City Office Mr. H. H. Melonne Deputy Director Mo. State Division of Insp. Jefferson City, MO
Have the principal take your students on a tour of the school building pointing out the safety procedures which have been taken.	Principal
Ask the school nurse to give a report on hygiene and the importance of maintaining good health.	School nurse

Evaluation:

The student will see the vast importance of maintaining one's health and the need to apply safety in all areas of work and play.

Comments on use:

Alan Meyer
Wes Rinnan

Subject Area(s) Industrial Arts

Unit(s) Safety Related to Industry

Objective(s):

Procedure:	Resources and Materials:
Have the student view slides or take a field trip to observe safety precautions taken by industry. Example: a. Clean floors b. Clothing necessities c. Eye protection d. Ear protection e. Head protection, "hard hat" f. Use of gloves g. Automatic stops h. Double start switches i. Protective guards j. Importance of good lighting k. Correct floor care non-skid adhesives, etc. l. Feet protection	Town & Country, Rival, Lamy, American Electrical Industries Field trip or slides from the above companies.
Have a special guest speaker, preferably a safety engineer, come to speak to the class on what he looks for and expects from safety.	Safety engineer
Demonstrate the machines in our laboratory and have the students orally list possible safety hazards.	School lab
Each student should list how they believe our lab could become more safe.	School lab
Students should list all the safety precautions they can find in our lab that have already been taken.	School laboratory

Evaluation: to realize the "pains" industry goes through to provide a safe work atmosphere; to view the dangers involved in a messy floor; to realize the dangers in improper dress, e.g. ties, shorts, long sleeves, etc.; to demonstrate the importance of eye safety in industry; to be informed on government regulations concerning hearing and hearing loss; to become acquainted with industry regulations concerned with head gear; to understand the importance of gloves while handling hot or sharp

Comments on use:

Ron Wilken

Subject Area(s) ____________________

Unit(s) Safety Related to Industry (con't)

Objective(s):

Procedure:	Resources and Materials:
Students should give a written report on why safety is important to industry.	Library

Evaluation: objects; to see how machines are designed to protect the worker; to help understand how the design of a double start switch assures that the hands are completely out of the way; to show how guards are designed into the machines; to realize that good, adequate lighting speeds production, improves quality of work, and decreases accidents; to understand the importance of not sliding into a machine; to prevent feet from getting smashed, or nails going through the bottom, etc. for the student to understand cost, danger, and importance of safety in our laboratory; for the student to see for himself the importance of safety in our laboratory; for the student to find possible danger areas in our lab; for the student to notice safety precautions that have already been taken; for the students to become acquainted with law suits, value of time, and safety.

Ron Wilken

Subject Area(s) Industrial Arts

Unit(s) Vocations Related Directly ro Our Laboratory

Objective(s):

Procedure:	Resources and Materials:
View professional buffers, polishing metal before plating.	Rival
Observe grinders removing rough burrs and imperfections.	Rival
Observe cutters cutting material with sabre saw.	Lamy
See the use of hand drills in manufacturing and assembly.	Rival
View and use correct operation of the drill press.	Town & Country Rival
Understand the correct use of tin snips.	Rival Town & Country Lamy
Observe correct use of the squaring shear.	Rival
Understand correct use of the foundry.	Rival
View correct methods of welding and their uses in industry . . . gas . . . arc . . . spot . . .	Rival
Observe spray painter and various jobs related.	Town & Country
View process of gluing and curing the glue.	Town & Country

Evaluation: For the student to realize opportunities in buffing; for the student to see jobs related to grinders; for the student to see vocation using sabre saw; for the student to understand importance of the hand drill; for the student to become acquainted with drill press; to realize related vocations with tin snips; to become acquainted with jobs related to squaring shears; to understand the variable uses of the foundry; to realize the use of welding in industry; to see vocation related to the spray gun; to understand dangers involved and correct methods and safety.

Comments on use:

Ron Wilken

Subject Area(s) ____________________

Unit(s) Vocations Related Directly to Our Laboratory (con't)

Objective(s):

Procedure:	Resources and Materials:
Look at the sanders and their job.	Town & Country
Observe the pop-riviting machines.	Lamy
View demonstration of soldering.	Rival
Students should pay special attention to the safety requirements made by industry.	Rival, Lamy, American Electrical Industries, Town & Country

Evaluation:

To realize jobs involved with sanding; to view vocational riviting; to view the jobs in soldering; to understand the importance of safety.

Comments on use:

Ron Wilken

Subject Area(s) Industrial Arts

Unit(s) Jobs Related to Industry

Objective(s):

Procedure:	Resources and Materials:
Have the students set up an assembly line and mass-produce some item, e.g. picture frame, recipe box, etc.	School laboratory
The students should work in all work stations on the assembly line. They should also perform the following activities.	
a. Safety advisor	guest speaker, safety engineer
b. Quality control specialist	quality control, guest speaker
c. Motion-time study personnel	guest speaker, motion-time
d. Maintenance	film "Maintenance and Machines"
e. Flow chart	guest speaker, draftsman
f. Supervisor	film "Supervisor's Duties and Responsibilities"
g. Foreman	guest speaker, foreman

Evaluation: To become acquainted with cooperation and working together; to realize the duties of safety personnel; to become acquainted with importance of quality control; to realize how this helps speed up production; to understand the importance of properly maintained equipment; to become acquainted with how smooth operation is accomplished; to understand the bridge between employee and employer; to see the duties and responsibilities of the foreman.

Comments on use:

Ron Wilken

Subject Area(s) ____________________

Unit(s) Jobs Related to Industry (con't)

Objective(s):

Procedure:	Resources and Materials:
h. Accountant i. Salesman	accountant, guest speaker film "Principles of Salesmanship"
Following production in our assembly line have the students list strengths and weaknesses in our production line.	Mass production of an item in our shop
An advertising specialist from the local newspaper give the class a talk on advertising methods and practices.	Advertising personnel
Each student should make an attractive poster advertising our mass-production item.	Students with cooperation of art department
Have each student research a project that could possibly be mass-produced in our laboratory.	Library

Evaluation: To understand profit margins, cost, sales, etc.; to acquaint the student with correct salesmanship; for the students to demonstrate knowledge of strengths and weaknesses of mass production; for the student to become acquainted with good and proper advertising methods; to demonstrate knowledge of proper advertising methods; to demonstrate knowledge of proper advertising techniques; for the student to develop a practice of thinking for himself.

Comments on use:

Ron Wilken

Subject Area(s) Conservation

Unit(s) ______________

Objective(s):

Procedure:	Resources and Materials:
Recycling	
Make a chart listing ways industry can recycle materials. Also list items that can be recycled	*Recycling: A Study in Ecology*, 1972
Waste Disposal	*Complete Answer*, 1970
Make use of the fact that a clean environment needs an acceptable waste disposal method by:	Environmental Protection Agency, State Legislature
a. Discussing ways of disposing of industrial wastes.	
b. Researching out existing laws controlling waste disposal.	
c. Discussing further laws which the students think should be enacted.	
d. Cite instances of improper methods used by local industry.	
e. Discussing how each student can develop proper standards of waste control for himself.	
f. Invite an area representative to visit the classroom and explain his companies policy of waste disposal.	Plant supervisor, Rival Manufacturing

Evaluation: To impress each student with the importance of proper waste disposal methods and to relate these practices to his or her own daily life. To make each student aware of measures that need to be taken to maintain the environment. To make each student aware that he can do something to help bring improper industrial waste practices to an end through group action. Conservation is not just for industry but individuals as well.

Comments on use:

Bob Chaney

Subject Area(s) Conservation

Unit(s) Natural Resources

Objective(s):

Procedure:	Resources and Materials:
Make a list of necessary resources for production in area industries.	
Discuss the uses of the resources.	
Discuss the sources of the resource. (Is it natural or synthetic?)	"Mineral Conservation Today" filmstrip
Invite a plant supervisor to class to exhibit and discuss his products.	
Ask students to bring items that are actually produced by area industries.	"Corrosion" 1971 slides Plastic to prevent "Challenge & Change"
Discuss the usage of materials used on these items.	

Evaluation: Students will be better able to see the relationship between the final product and the raw resource. He also will better understand the transformation necessary for industrial production to take place.

Comments on use:

Bob Chaney

Subject Area(s) General Science

Unit(s) Electricity

Objective(s):

Procedure:	Resources and Materials:
Pre-trip activities	
Class discussion of the theory and operation of electrical devices such as electric motor, electric heaters and related devices.	Library, textbook, etc.
Library papers written by the student on the above subjects.	
During trip activities	
Observe the manufacturing of electric motors and electric heaters.	Rival Manufacturing Company Plant
Observe quality control testing of the items manufactured.	
Post-trip activities	
Students will build an electric motor.	Library materials, textbook and other related materials
Students will determine the electrical resistance of various electrical appliances and compare their results with the rating shown on the appliance.	

Evaluation: The student will better understand the operation and construction of the materials they will see on the field trip. The student will see the application of the pre-trip activities in the operation of the plant being visited. Students will better understand the principles involved in this manufacturing process and the skills needed in this field.

Comments on use:

Don Kauble

Subject Area(s) General Science

Unit(s) Electrochemistry

Objective(s):

Procedure:	Resources and Materials:
Pre-trip activities	
Class discussion on the electroplating process.	Textbook, library materials, films and filmstrips.
Library reports on electroplating.	Film, "Electrochemistry" Encyclopedia Britannica Films Filmstrip, "Electroplating" McGraw-Hill "Electrochemistry - Linking of Two Sciences" McGraw-Hill
During trip activities	
Students will observe the electroplating operation.	Rival Manufacturing Company Plant
Post-trip activities	
Students will electroplate a metal object such as a key or spoon.	Textbook, library materials, etc.

Evaluation: Students will better understand the processes they will see on their field trip. Students will better understand the application of the theory studied prior to the field trip. Students will better understand the skills needed to work in the field of electrochemistry.

Comments on use:

Don Kauble

Subject Area(s) General Science

Unit(s) Electricity

Objective(s):

Procedure:	Resources and Materials:
Pre-trip activities	
Students will prepare a library report on electrical conductors and/or insulators.	Library materials and textbook.
Class discussion of the physical properties of various electrical conductors and why they conduct. Compare aluminum and copper as electrical conductors. Give the advantages and disadvantages of each.	Student reports and textbook. Local electrician may be invited to discuss his work and the materials he uses.
During trip activities	
Students will observe the process of forming aluminum rod into wire and the stranding of wire cable.	American Electrical Industries
Students will observe the application of insulating materials to aluminum cable.	
Post-trip activities	
Students will test various materials to determine their electrical resistance and their possible value as an electrical conductor or insulator.	Textbook, library materials and film. Measurement of Electricity, Coronet Films

Evaluation: Students will better understand the properties of conductors and insulators. Students will understand the comparative values of the materials discussed and the necessity of evaluating materials for commercial processes. Students will see the application of the properties of a material in manufacturing a product. Students' lab reports will be evaluated for understanding of the materials.

Comments on use:

Don Kauble

Subject Area(s) General Science

Unit(s) Organic Chemistry

Objective(s):

Procedure:	Resources and Materials:
Pre-trip activities	
Prepare library reports on synthetic and/or natural materials (leather, wool, cotton, rayon, nylon, rubber, etc.)	Library resources
Class discussion of differences and uses of various materials.	Student reports, textbook and film "Our Polymer World" Polystar, Inc. Akron, Ohio "Physical Chemistry Of Polymers" Bell Telephone Labs
During trip activities	
Students will observe the uses of various materials in the manufacturing of shoes.	Town & Country Shoes Factory
Post-trip activities	Laboratory equipment textbook, library, chemistry book.
Students will perform test to distinguish between various materials. a. microscopic examination b. burn test c. chemical tests	
Students will prepare synthetic materials. a. rayon b. nylon	

Evaluation: Students will better understand the properties of various materials. Students will understand the application of the various materials in a manufacturing process. Students will understand the uses and properties of the various materials used in the manufacture of this product and some of the skills related to the industry.

Comments on use:

Don Kauble

Subject Area(s) General Science

Unit(s) Organic Chemistry

Objective(s):

Procedure:	Resources and Materials:
Pre-trip activities	
Students will prepare library reports on various dyes and the fabrics on which they may be used.	Library sources and textbook
Class discussion of dyes and fabrics.	Student reports and the textbook
During trip activities	
Students will observe the application of a fabric in the manufacture of clothing.	Lamy Manufacturing Company
Post-trip activities	
Students will study the effects of various dyes on fabric samples. (dyes and fabrics may be provided by the students)	
Students will compare the effect of light on dyes in various fabrics. (compare the fading of exposed areas with protected areas in seams)	Dyes and fabrics available

Evaluation: Students will better understand the materials they will see on the coming field trip. Students will observe an application of processes and materials discussed in class. Students will better understand some of the activities and problems that are a part of one manufacturing process.

Comments on use:

Don Kauble

Subject Area(s) General Science

Unit(s) Electricity

Objective(s):

Procedure:	Resources and Materials:
Discuss the basic concept of electricity relating what it is, how it is generated, and how it is transmitted to the home.	Instructor lecture Films: "What is Electricity" Encyclopaedia Britannica "Electricity and How It Is Generated" Coronet Films
Discuss some of the uses of electricity in the home.	
Assign students to make a list of ten different ways that electricity is used in their home. Classify the uses as (1) motor related (2) heat and/or light related.	Student's home
Discuss and illustrate the basic structure of the electric motor explaining the purpose of each part.	Take apart a simple small appliance motor pointing out the various parts and discussing their purpose.
Have the students name some different uses for electric motors.	Film, "How an Electric Motor Works"
Discuss the electrical terms: resistance, voltage, current, power.	Instructor and text
Discuss how heat is produced using electricity.	Instructor and text
Discuss the effect of changing the type of material being used as the "element" upon the heating ability of the heater.	Instructor lecture Science text

Evaluation: Gain an understanding of what electricity, is, its source, and how it is carried to the home. Student awareness of the uses of electricity around them. Gain an understanding of the basic principles of electric motors and become familiar with their structure. Recognize and understand what is meant when electrical terms are used. Gain some knowledge as to why electricity may be used to produce heat. Gain a knowledge of what materials are used in making the heater "elements" & why that material was chosen.

Comments on use:

Ron Henke

Subject Area(s) ____________

Unit(s) Electricity (con't)

Objective(s):

Procedure:	Resources and Materials:
Discuss also, the effect of varying the length of the "element" as well as its thickness and the amount of current being passed through it.	
During trip	
Identify the different parts of the electric motor.	Visit the different stations in the plant where each part is made or assembled.
Determine the type of material (kinds of metal, etc.) used in making the motors.	Plant spokesman or assembler
Make a list naming each step in the manufacture of a single electric motor. Ask for name of operation being observed.	Plant spokesman or operator
Learn the approximate cost for the manufacture of a single electric motor for each of several power ratings.	Plant spokesman
Find out what type of material(s) is used in the heaters for an "element."	Plant spokesman
Learn how heaters of different heat ratings differ in construction. Obtain the power rating in watts for the different heating units manufactured by the company.	Plant spokesman

Evaluation: Gain an understanding of why the same material may be used for the element in heaters which produce different amounts of heat. The opportunity to see the individu parts of the motor and how they are all put together to make a motor. Gain a knowledge of what type of materials are used in the construction of the electric motor. Become familiar with the procedure used in the assembly of the motor. Learn what materials are used and why. Gain an understanding of why different heaters are rated differently and an understanding of the reason for this.

Comments on use:

Ron Henke

Subject Area(s) ____________

Unit(s) Electricity (con't)

Objective(s):

Procedure:	Resources and Materials:
Post trip	
Discuss how the electric motors were made, including types of materials, names of parts, and the function of each part.	Field trip experience
Construct a simple electric motor to be driven by the current from dry cells. Make a drawing of the simple motor and label each part.	Life Science Library Energy, page 132
Using the power ratings of the electric heaters and the cost of electricity per kilowatt-hour (to be calculated by each student from parents' latest electricity bill) calculate the cost of operating the heater for 1 hour, 8 hours, and 24 hours.	Cost = #kw x #hrs x cents per kw-hr
Construct and demonstrate a simple electric heater.	Instructor

Evaluation: Understand the steps in the construction of electric motors and the part each piece contributes to the working of the motor. Demonstrate the ability to construct and label a simple electric motor. Relate use to economics. Become aware that electric heaters are basically very simple in construction and operation.

Comments on use:

Ron Henke

Subject Area(s) Chemistry

Unit(s) Plastics

Objective(s):

Procedure:	Resources and Materials:
Discuss briefly the historical development of plastic synthesis. Discuss what plastics are and some of the many uses for the different types of plastics.	Booklet, "The Story of the Plastics Industry" Public Relations Committee The Society of the Plastics Industry 250 Park Ave., New York, NY 10017
Discuss the different types of plastics, their uses and their properties. Discuss some of the methods of forming plastics.	A listing of films, filmstrips and slides is also available from the above address.
During trip	
Ask what type(s) of plastic(s) is/are used in the production of the various parts or products being made.	Plant spokesman or operator of process
Find out what method is being used to form the plastic(s).	Plant spokesman of process operator
Find out how many different types of plastics are used in the factory and how many different methods of formation are used. Observe these.	Plant spokesman and production line
Determine why different types of plastics are desirable for the different products.	Plant spokesman

Evaluation: Obtain information on the development of plastics, the nature of plastics, and the various types and uses for the plastics. Recognize why some plastics have much different properties from others. Recognition of the type(s) of plastic used in local industry for specific products. Actual observation and recognition of a particular formation method being used. Distinguish between the different types of plastic formation and explain how they differ. Be able to relate specific uses to specific types of plastics.

Comments on use:

Ron Henke

Subject Area(s) ____________

Unit(s) Plastics (con't)

Objective(s):

Procedure:	Resources and Materials:
Post-trip	
Have the students name some different types of plastics and give a use for each.	Field trip observations
Have students name and explain the difference between some of the different methods of plastic forming.	Field trip observations
Have the students prepare a plastic in the laboratory and make observations concerning the plastic they prepared.	Lab: The Preparation of Amine-Aldehyde Type Polymer and/or The Depolymerization of a Methyl Methacrylate Polymer and the Subsequent Polymerization of the Monomer Lab procedure may be found in Chemistry: An Investigative Approach Cotton and Lynch, Houghton and Mifflin Publication Company

Evaluation: Recognition of the different types of plastics used in some local industry. Awareness of how some plastics are utilized in industry locally. Opportunity to prepare a plastic and observe some of its properties and classify it as to type and possible usage.

Comments on use:

Ron Henke

Subject Area(s) Chemistry

Unit(s) Chemistry of Aluminum

Objective(s):

Procedure:	Resources and Materials:
Pre-trip	
Class discussion of the metallurgy of aluminum; its occurence, and its availability.	Instructor and text
Discussion of the Hall-Heroult process of recovering aluminum economically from its ore.	Instructor and text
Demonstration of the electrolysis procedure to help in understanding the afore mentioned process. Electrolysis of water may be done by the students or the instructor.	Lab exercise by the student or demonstration by the instructor
Discussion of the physical and chemical properties by aluminum.	Sample of aluminum and lab investigation using the samples or demonstration using a sample
List and give some examples of the uses for aluminum.	Student knowledge Instructor Text
During trip	
Inquire about the source of aluminum for the plant.	Plant spokesman
Ask about the cost of the aluminum.	Plant spokesman

Evaluation: Learn the forms in which aluminum naturally occurs and also how abundant it is. Learn how aluminum may be produced economically from the ore. Become familiar with the method used to isolate the aluminum from its ore. Observe and become aware of the properties of aluminum such as conductivity and chemical activity. Relate the aluminum to its uses. Determine how the company produces or acquires its aluminum. Compare cost of aluminum to cooper.

Comments on use:

Ron Henke

Subject Area(s) ____________

Unit(s) Chemistry of Aluminum (con't)

Objective(s):

Procedure:	Resources and Materials:
Observe the form and shape of the aluminum at the start of processing and them observe the changes it undergoes at different points in the processing.	Learn about the appearance, weight (density), ductility, and oxide coatings of aluminum.
Observe the different properties exhibited by the aluminum during the processing.	Observation in plant
Ask about the specific uses for the product(s) being made.	Plant spokesman
Post-trip	
Discuss the chemical reason or explanation for the good electrical conductivity of aluminum.	Instructor and text
Discuss why aluminum finds large scale commercial application but is not used for wiring in the home. (copper is used)	Discussion of comparison of properties and cost with those of copper
Discuss the properties of aluminum as observed in the plant; ductility, formation of oxide coating, etc.	Field trip observations Text
Develop an explanation of why aluminum is used in the place of copper in overhead electric transmission lines.	Class discussion and knowledge of properties of the two metals

Evaluation: Learn how aluminum is used in a local industry. Understanding of electrical conductivity and why some metals are better than others for that purpose. Recognize instances where cost and/or efficiency are most important. Actually see what is meant by the terms used to describe the metal. Gain an understanding of why aluminum can withstand weathering. Recognize situations where different properties of substances dictate which is to be used for particular purposes.

Comments on use:

Ron Henke

Subject Area(s) ____________________

Unit(s) Chemistry of Aluminum (con't)

Objective(s):

Procedure:	Resources and Materials:
Determine method being used to form the plastic.	Machine operator or supervisor
Find out how many different types of plastics are used in the factory and how many different formation methods are used. Observe these.	Plant supervisor
Ask why different types of plastics are used for the different purposes.	Supervisor or worker
Post-trip	
Have students name some different kinds of plastics.	
Have students name and explain the difference between some of the methods of plastic formation.	
Have students prepare a plastic in the lab and make observations concerning that plastic.	

Evaluation: Recognition of method of formation being used. Describe types of plastics and how they are made. Should be able to recognize why different plastics have different uses.

Comments on use:

Ron Henke

Subject Area(s) Chemistry

Unit(s) Polymer Chemistry

Objective(s):

Procedure:	Resources and Materials:
Pre-trip Discussion	
Discuss, in general terms, the role of chemistry in the manufacture of wearing apparel.	Booklet: Petrochemicals--The New World of Synthetics, Ray T. Wandland, Doubleday and Co.
Name some of the synthetic materials used in industry, such as nylon, polyethylene, etc.	Film: "Synthetic Fibers (Nylon and Rayon)" Encyclopaedia Britannica Films, Inc.
Assign students to bring in a list of 10-15 objects at home which are synthetic materials.	
Discuss the chemistry of polymers.	Organic Chemistry, Morrison and Boyd, Allyn and Bacon Pub. Co.
Illustrate using diagrams and molecular models the unit structures of a few of the more common polymers such as nylon and polyethylene.	Films: "Our Polymer World," Polystar Inc. and "Physical Chemistry of Polymers" Bell Tel. Labs
Explain why objects have their own characteristic color.	A physics text, light unit Film: "Light and Color" Encyclopaedia Britannica Educational Corp.
Discuss and display various organic dyes. Diagram their structures.	Film: "Dyes--Some Principles of Organic Synthesis" E.B.E.C.

Evaluation: Recognize that materials used in wearing apparel are not all naturally occurring materials. Acquire the ability to recognize from clothing labels the nature of the materials used. Develop an awareness of the vast number of synthetic materials used in everyday life. Gain knowledge concerning the structure of polymers and how they differ from other chemical substances. Gain an understanding of why different objects appear to us in different colors. Recognize that a dye is a chemical compound with a definite structure.

Comments on use:

Ron Henke

Subject Area(s) ____________________

Unit(s) Polymer Chemistry (con't)

Objective(s):

Procedure:	Resources and Materials:
During Trip	
Inquire about the various materials used in the manufacture of the product, from start to finish.	Company spokesman
Make observations of materials regarding appearance, feel, strength, etc.	Material samples
Observe dying techniques used. Inquire as to the types of dyes being used.	Observation in dyeing department and information from company spokesman
Observe what actual "changes" take place in the materials if any.	Compare beginning materials and finished product
Post-trip	
Identify some of the synthetic materials used in the manufacture of the particular products.	Field trip information
Chemically classify the materials used.	Teacher lecture on polymers
Student should attempt to find and diagram the unit cell structure for one or more of the polymers used. Student should explain the difference between a polymer and a monomer.	Chemistry textbooks -- organic chemistry or polymer unit

Evaluation: Become aware of some of the different materials used in the manufacture of a particular product. Compare several different properties of different materials. Recognize how the color of materials may be changed and what is used to bring about this change. Gain a knowledge of what is used to form the product. Recognize how polymers differ from other materials. Realize the difference in properties of materials caused by polymerization.

Comments on use:

Ron Henke

Subject Area(s) ________________

Unit(s) Polymer Chemistry (con't)

Objective(s):

Procedure:	Resources and Materials:
Identify which of the changes observed in the manufacturing process were chemical and which were physical.	Definition of chemical and physical changes.
Prepare a polymer in the laboratory and test some of its properties.	Lab: The Preparation of a Polyurethane Foam and/or The Preparation of Nylon 6-10
Prepare some dyes in the laboratory and use them to dye various materials.	Lab: The Coupling of Aromatic Diazonium Compound, Dyes and Dyeing
	Lab procedures may be taken from Organic Experiments, Linstromberg and Baumgarten, D.C. Health Pub. Co.

Evaluation: Be able to recognize when a material has its identity changes and when only the appearance of the material has changed. Gain experience in actually preparing a polymer and testing some of its properties. Gain experience in the preparation of a dye and observing its effect upon various types of materials.

Comments on use:

Ron Henke

Subject Area(s) General

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities	
View one or more of the following films as they may relate to your class or trip.	
"World of Work"	Counselor Film Inc.
"Women in the World of Work" "Opportunity Everywhere" "Why Work" "So You Want to Be a Tool and Die Maker"	Houghton Mifflin 1900 S. Batavia Avenue Geneva, IL 601134 Rental 15 dollars
Filmstrips with cassettes or records. "Career Awareness" "Why Work" "Thinking About and Planning a Career" "How Work Becomes a Career"	All filmstrips mentioned are obtainable from Westinghouse Publishing Co.

Evaluation: So students may become familiar with the various occupational classifications and job cluster and the world of work.

Comments on use:

Ruth Hepler

Subject Area(s) General

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:

Pre- or Post-Field Trip Activities

SRA Kits
- "Designer"
- "Electronics Technician"
- "Appliance Salesman"
- "Draftsman" etc.

Career Tapes
Unit 1 Tape 1
- Booking-Bookkeeper
- Computer Programmer
- Tape 4
- Sound Engineer
- Telephone Operator

Unit 2 Tape 1
- Air-Quality Technician
- Tape 8
- Mechanic
- Purchasing Agent
- Tape 9
- Welder
- Quality Control Inspector
- Engineer
- Tape 11
- Carpenter
- Tape 14
- Home Economist
- Tape 15
- Building Inspector
- Tape 18
- Retail Sales Clerk
- Appliance Serv. Tech.
- Credit-Manager

Resources and Materials:

SRA Kits

McMillian Publishing Company

Evaluation: So students can become informed about jobs and careers in specific job areas of their interests.

Comments on use:

Ruth Hepler

Subject Area(s) General

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities or Post-Field Trip Activities	
Games Career Insights and Awareness Games	Houghton-Mifflin 1900 S. Batavia Avenue Geneva, IL 60134
Career Kits 9-62525 Industrial Kit 9-62526 Business Kit 9-62530 Semi-skilled Kit	Houghton-Mifflin
Filmstrips and cassettes or records Career Education Clusters Series 1 Manufacturing Series 2 Marketing and Distribution Transportation	Westinghouse Career Education Cluster, Westinghouse Pub. Co.

Evaluation: For student to become familiar with occupational classifications and clusters so that they can consider them as possible fields of work.

Comments on use:

Ruth Hepler

Subject Area(s) ______________

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities	
Films:	
"Electronics: The Career That Serves"	Bell and Howell School Sales Department 4141 Belmont Avenue Chicago, IL 60641 Free
"Engineering: The Challenge of the Future"	Eta Kappa Nu Assoc. Mr. P. K. Hudson, Exec. Sect. c/o Electrical Engineering Dept. University of Illinois Urbana, IL 61801
"Exciting Careers in Engineering"	Klein Company 630 Carmel Road Charlotte, NC 28211
"Mining's Challenge"	Colorado Mining Assoc. Cromar's Audio-Visual Center 1200 Stout Street Denver, CO 80204

Evaluation: To have student become aware of the various field of occupation in metals and engineering.

Comments on use:

Ruth Hepler

Subject Area(s) English

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities	
View film "World of Work." Discuss film and work clusters.	"World of Work," Counselor Films, Inc.
Have students make a list of possible questions to ask a representative of Town and Country.	
Have a representative of company come to the class and discuss company and answer questions drawn up by students.	Representative of company

Evaluation: For students to become familiar with occupational jobs and clusters. So student can develop awareness of relevant factors to be considered in considering a job field. So student may explore key occupational areas and assess own interests and abilities.

Comments on use:

Ruth Hepler

Subject Area(s) English

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Write thank you notes to representatives and the company for making trip possible.	English textbook, business letters, and thank you notes sections
Write a short story describing what you saw during your trip.	Student observation and English book
Write a term paper on the history of shoemaking curing of leather, or development of man-made products for shoes.	Encyclopedias Library under subject English textbook Film, "Why the Shoe Fits" Brown Shoe Company, 1686 Elmhurst Road, Elk Grove Village, IL

Evaluation: To make student aware of the use of business ettiquette. To develop an awareness of various occupations and jobs in this industry. To develop an awareness of occupations and jobs related to the shoe manufacturing industry.

Comments on use:

Ruth Hepler

Subject Area(s) English

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Obtain application blanks from 4 or 5 companies. Study and compare.	Applications from various plants in town
Have students design a job application blank using best features from blanks previously discussed.	Student and teacher observation and discussion
Practice filling out application blanks.	
Have several students role play applying for a job at one of the plants visited.	

Evaluation: The student will become familiar with the proper way to apply and fill out job applications.

Comments on use:

Ruth Hepler

Subject Area(s) Language Arts, Grades 5-7

Unit(s) Post-Field Trip Activities--Town and Country Shoes

Objective(s):

Procedure:	Resources and Materials:
Poem: Have students write poems about shoes or something they observed at the shoe factory. Each poem may be illustrated by the student and displayed to the class.	Paper Art supplies
Story: As a group activity, students with the guidance of the instructor could create a story about shoes or the shoe factory. This story may be dramatized by the group using the students as actors, puppets made by the students or dioramas.	Art supplies

Evaluation: To enhance the creative ability of each student.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7
Unit(s) Post-Field Trip Activities--
Rival Manufacturing

Objective(s):

Procedure:

Post-Field Trip Activities

Product: Following the visit, the students may discuss the various items either made or in display in the plant. The discussion should include how the items are used and who uses them, and possibly the percentage of the populations using each particular item.

As a further activity, the students may bring any Rival products from their home to place on display for the class. These may include: slicer, crock-pot, can opener, heater, electric knife, etc.

Citizenship: Discuss with the students the fact that Rival employees are paid on a "quality versus quantity" scale. This may be compared with the students' own work at school to illustrate the fact that the important thing is how well the student does his work rather than the amount of work he produces.

Resources and Materials:

Rival products available

Evaluation: Students will discover the importance to society of the items made at this particular plant. To create a desire in the student to strive to improve his own product.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7
Unit(s) Pre-Field Trip Activities--
Town and Country Shoes

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities Related to Town & Country Shoes Information on shoes: Research different types of shoes manufactured through the years and obtain pictures to use with reports which may be presented to the class or displayed on bulletin boards.	Encyclopedias Magazines Newspapers Catalogs Poster board Paper, pencil Glue Markers
Comparison of shoes of different countries: Students may research the types of shoes worn by peoples of other countries as they are related to daily lives and occupations. For example, the types of shoes worn by the people in Alaska, Japan, Africa, and the U. S. are quite different. If possible, pictures or actual pairs of shoes which students have access to may be displayed in the classroom.	Magazines Social studies texts People in community Encyclopedias
Occupations: Have students make a list of the occupations in the city of Sedalia or surrounding cities they are aware of. Under each occupation, students may list the type of shoes worn by the individuals during their work day. Example: Dancer-tap, toe, ballet, ballroom. Students may also discuss why the worker wears this type of shoe, whether it be for comfort, protection, color, etc. These lists may be placed on a large roll of newsprint which may be in turn placed on a wall of the classroom.	Self-knowledge Newsprint Marking pens Encyclopedias

Evaluation: To enable the student to gain an understanding of the change of customs, cultures and environment which have occurred in society through the passage of time. To enable the student to gain an understanding of the values and cultures of others through research of their dress and daily lives. To enable students to relate to and obtain knowledge of various cultures and occupations.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7

Unit(s) Post-Field Trip Activities
Related to Lamy Manufacturing Co.

Objective(s):

Procedure:

Post-Field Trip Activities Related to Lamy Manufacturing Company

Ecology--Salvage of Denim. Following the trip, ask the students the following questions.

1. Does anyone remember what the factory does with their material scraps? (They are sold to a salvage man.)
2. Is all the material sold together? (No. Cotton is separated from polyester.)
3. What does the salvage man do with the scraps? (He sells them to a paper manufacturer.)
4. What does the paper mill do with them?
5. Why is this important to us?

Many other questions may be included concerning this process.

Resources and Materials:

Evaluation: To discover more about the importance of ecology.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies, Grades 5-7

Unit(s) Post-Field Trip Activities Related to Town and Country Shoes

Objective(s):

Procedure:

Post-Field Trip Activities Related to Town and Country Shoes

Materials: Discussion of different materials observed by students. What type of materials were used? (leather or man-made) (fabric, buckled, trim) This would create interest in what kinds of leather there are and what it is made of--pigskin, calfskin, kidskin--also how are man-made shoe materials created. Students may research and present their information to the class, along with any pictures or examples they may have obtained.

Odors: Ask students if they noticed any unusual odors in the factory. This should involve a discussion of the smells of glue, dyes, and steam. What are the health hazards of breathing these materials daily?

Assembly: Have a discussion with students about the assembly line in the factory. Stress that each individual plays a part in creating the finished product. Students who work in the school cafeteria could tell about the assembly line there and the timing involved to create a smooth operation.

Resources and Materials:

Encyclopedias
Self-knowledge
Magazines

Evaluation: To become aware of the varied material shoes are constructed from as well as the actual process of construction. To become aware of the different odors in various environments and the possible health hazards involved. Recognition of each person's contribution to society and the world of work.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7
Unit(s) Field Trip to Rival Manufacturing

Objective(s):

Procedure:	Resources and Materials:
Guest speaker: Invite a Director of Public Works or the people he designates; (Sanitation Engineer, Electrical Engineer, Civil Engineer, etc.) to explain and illustrate to the students the problems evolving from factory production. Some of these problems would include acids and other materials dumped into sewers; extensive use of electrical energy; parking and traffic problems, extensive use of water supply, etc. The teacher should hold a discussion with her class to introduce them to some of the problems prior to the engineer's visit.	Director of Public Works Civil Engineer Sanitary Engineer Electrical Engineer
Motors: The teacher may lead the students in a discussion of the various motors they observed being assembled in the Rival Plant, and what piece of equipment they were to be used in. Continue the discussion by listing other objects which make use of electric motors (electric trains, cars, fans, air conditioners, etc.) If some students have access to an electric motor at home, they may bring it to display in the classroom.	Electric motors

Evaluation: To introduce to the student that a factory affects the city as well as the environment. The students will realize our dependence upon electric motors of all sizes and design.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies, Grades 5-7

Unit(s) Field Trip to Lamy

Objective(s):

Procedure:

Assembly line: Students may be divided into groups of five (as many groups as you have students). Each group will work upon as many pairs of house shoes as there are students in the room. The house shoes will be constructed of washcloths applying the assembly line process.

EXAMPLE:

Group 1: Pin the washcloth where it will be sewed.

Group 2: Sew that seam and turn down the top.

Group 3: Makes the pompom.

Group 4: Attaches the pompom.

Group 5: Packages the product for the student to take to his home.

PATTERN:

1. Fold washcloth diagonally in half.

2. Sew designated seam only enough to cover heel.

3. Turn down top.

Finished product.

Resources and Materials:

Washcloths
Needles
Thread
Yarn
Wrapping paper

Evaluation: To introduce students to an actual experience in the assembly line process.

Comments on use:

Opal Johnson

Subject Area(s) **Social Studies,**
Grades 5-7
Unit(s) **Field Trip to Rival**

Objective(s):

Procedure:	Resources and Materials:
Molding: As a pre-field trip activity to introduce the students to the molding machines they will observe the students may create molds of their own using plaster of paris and rubber or plastic molds. They may also employ sand casting to illustrate the same type of procedure.	Plaster of paris Plastic bucket Molds Newspaper Sand Container or forms, etc.

Evaluation: This activity will introduce the student to the molding process employed by the plant.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7
Unit(s) Field Trip to Rival

Objective(s):

Procedure:

Collage: Following the field trip, the students may discuss the various materials they observed while touring the plant. They may bring any of these materials they have access to at home to school and create a collage with them.

Resources and Materials:

Wire
Plastic
Rice (to represent plastic pellets)
Pieces of metal
Parts of small machines, etc.
Cardboard back
Glue
Markers

Evaluation: Obtaining and using the materials observed while touring the plant and after class discussion should help reinforce the learning process.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies,
Grades 5-7
Unit(s) Pre-Field Trip Activities--
Rival Manufacturing

Objective(s):

Procedure:	Resources and Materials:
Parts of the whole: This project should relate to students the assembly line production method. The teacher may use picture puzzles which the students may all work together to illustrate the parts which comprise the whole. Other articles which may be used are models of various sorts: skeletons, human brain, motor, generator, etc.	Picture puzzles Different types of models available to the teachers

Evaluation: To illustrate to the student the importance of each "part of the whole" or assembly line process.

Comments on use:

Opal Johnson

Subject Area(s) Social Studies

Unit(s) Sixth/Seventh Grade

Objective(s):

o

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Have students make chart showing the steps that the aluminum rods go through until they become the finished insulated wire.	Student's observation Representative's talk
Have students trace the development of aluminum from the raw ore to the rod state. This may be done with pictures, cartoon drawings, or as a written paper.	Social studies text on South America and Canada Encyclopedia

Evaluation: For students to have an awareness of how a product is converted from the raw material into the finished product, the steps necessary and the various jobs involved.

Comments on use:

Ruth Hepler

Subject Area(s) Social Studies

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Make a list of all raw materials used in the production of shoes as observed by student during trip.	Student observation
Look into the tanning process and manufacturing of different kinds of leathers, both natural and man-made.	World book or other encyclopedia Slides--free "Rubber Elastromers" Educators Progress Serv. Randolph, Wisconsin
Find out about export and import tariffs, etc. concerning the shoe industry.	U. S. Government Tariff Laws Washington, DC Congress of the U. S. Congressional Library

Evaluation: For student to develop awareness of work world. Student should develop awareness of the development of raw materials into finished product. So student can develop awareness of work world and government involvement in work world.

Comments on use:

Ruth Hepler

Subject Area(s) Math, Grades 5-7

Unit(s) Post-Field Trip Activities--
Town & Country Shoes

Objective(s):

Procedure:	Resources and Materials:
Students may obtain copies of catalogs and newspapers and purchase shoes in the classroom. This would be a two-part activity. Students would practice addition in figuring the total amount owed for shoes as well as subtraction and making change and figuring tax. Shoes may be purchased for their own use as well as for their family.	Newspapers Catalogs Paper, pencil, etc.
Students may bring shoes to school and a shoe store may be set up with sales persons, customers, etc. Students may actually purchase shoes and pay with play money, receive their change and conduct other related activities.	Shoes Play money

Evaluation: To enable the student to learn the actual cost of shoes on today's market. To obtain practice in addition, subtraction, multiplication and making change. To learn about plant operations and jobs available on an individual basis.

Comments on use:

Opal Johnson

Subject Area(s) Math

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Set up a dummy company and dummy inventory. Then keep a running inventory of incoming materials and out-going finished products for a week or month.	Teacher oriented
Have student figure out daily, weekly, monthly, and yearly income according to pay schedule of company.	Rival's pay schedule
Have student compare income possibilities at Rival with other companies in area.	As many pay schedules of companies in area as obtainable

Evaluation: So student can become familiar with inventory process. So student can explore economical phase of work. To explore the economical phase of work as it relates to the student.

Comments on use:

Ruth Hepler

Subject Area(s) Math

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Devise problems concerning things seen at factory such as: If the factory is putting out 3,700 pairs of shoes per day, how many are produced in 5 days.	Teacher and teacher observation at plant
If the company has 70 retail stores, how many employees would be on their payroll if each store averages 2 3/4 employees per store.	
Have students devise math problems covering various aspects of the trip and talk by plant representative.	Student observation and awareness

Evaluation: Develop awareness of surroundings and other related factors. For students to gain experience in meaningful decision making and observation.

Comments on use:

Ruth Hepler

Subject Area(s) Math

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Have an assortment of problems dealing with observed operations at the plant. Example: If it takes an operator 15 minutes to do a bundle of 48 pants, and that bundle is worth $1.35; how much can the operator make in one hour.	Teacher-made
Have students divide into three groups and construct the general layout of the three floors of the plant. This need not be to scale, just to see how well they observed.	Student observations and cooperation
Have students compare wages, pay scales, benefits with other companies in the area.	Pay schedules from various plants. Notes from field trip and speakers.

Evaluation: Career related--to see the need for math outside of the classroom. To help students realize it is necessary to learn to cooperate to get a job done. To realize the economical factor of the work world.

Comments on use:

Ruth Hepler

Subject Area(s) Chemistry--Science

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Do analysis testing on various types of materials worn by students--man-made and natural textiles. Write up the findings on your testing.	Science books Units on chemistry
Make a study of processes used in manufacturing of rayon, nylon, plastic materials and either diagram findings or report orally or written.	Science textbooks Encyclopedias Library resources Film "The Wonderful World of Nylon" Motion Picture Service, Advertising Department, 1007 Market Street, Wilmington, DE 19898 Free

Evaluation: To have students explore various types of materials used in various occupational fields. For students to become knowledgeable in the process of various industry and related careers.

Comments on use:

Ruth Hepler

Subject Area(s) Science

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities	
Make a collection of various materials used in manufacturing shoes. Tell where they are obtained and how manufactured.	World book or other encyclopedia Observation at factory Discussion with employees
Experiment with tanning (curing) a piece of raw skin or fur to produce leather or cured skin.	World book or other encyclopedia Books on tanning or curing of leather from local library

Evaluation: To have students become aware of relevant factors involved in this industry. For student to become familiar with some skills needed in this occupation.

Comments on use:

Ruth Hepler

Subject Area(s) Science, Grades 5-7

Unit(s) Post-Field Trip Activities Related to American Electrical Industries

Objective(s):

Procedure:	Resources and Materials:
Post-Field Trip Activities Related to American Electrical Industries	
Ecology: To illustrate the concept that the P.V.C. pellet insulating compound, which is used to cover the wires, may be recycled and used again. The students may want to perform the following experiment.	
Using a block of wax, have the students melt the wax and place into several small containers. These containers may be of various types. After the wax has cooled and is hard, remove from the forms. After all students have observed the wax in its new form again, reheat and return the wax to its original block form.	Hot plate or alcohol burner Metal container Wax Small waxed containers Candle molds, etc.
Safety: Involve the students in a discussion of the various safety factors or devices they observed, including automatic power cut-off; protective glasses; screens covering the machines; ear plugs for employees; secondary lighting; traffic signals inside the plant.	
Following the discussion to reinforce the safety concept have the students design posters illustrating all of the safety factors they have discussed. These may be grouped and placed on the classroom wall. The teacher may want to provide a title for the exhibit.	Poster board Markers Colors Tape Other supplies as needed

Evaluation: To illustrate the concept that many materials may be recycled and placed into constructive usage again. To reinforce the concept that safety should be of first importance and productivity second.

Comments on use:

Opal Johnson

Subject Area(s) **Art, Grades 5-7**

Unit(s) **Post-Field Trip Activities--American Electrical Industries**

Objective(s):

Procedure:

Braiding and wire sculpture: Following the field trip to American Electrical Industries, the teacher may lead the students in a discussion of the manner in which the wire is wrapped or braided together to carry varying amounts of electricity. (The discussion should include the information that the wires are wrapped around a core and are not all wrapped in the same direction. This being done for strength as well as adhering the wire together.)

Following the discussion, the students may braid the wires on an individual basis and using their braided wire create a sculpture of the plant facility, something, or someone they observed during their visit.

Resources and Materials:

Small wire which may or may not be multicolored

Evaluation: To reinforce the concept that the wires manufactured at American Electrical Industries and in use are not one single wire but many wires braided together according to the amount of electricity carried.

Comments on use:

Opal Johnson

Subject Area(s) Home Economics

Unit(s) Sixth/Seventh Grade

Objective(s):

Procedure:	Resources and Materials:
Pre-Field Trip Activities	
Have a style show of outfits made by home economics and 4-H students. Have them tell how long it took them to select pattern, select proper materials, cut and sew their garments.	Patterns Student's personal experiences
Have students inventory the class to see the various types of materials worn (both man-made and natural). Try and determine how these materials are made or produced.	Student observations Encyclopedias Science textbooks

Evaluation: So students can see the need for meaningful decision making in avocational activities as well as vocational activities. So students can become aware of the various processes necessary and careers involved in producing these textiles.

Comments on use:

Ruth Hepler

Subject Area(s) English

Unit(s) Creative Writing

Objective(s):

Procedure:	Resources and Materials:
Pre:	
Read a descriptive short story. Discuss impressions.	A Visit to Grandma's by James Agee
Post:	
Write an impressionistic sketch of a particular person or scene from the field trip.	Field trip to Lamy's

Evaluation:
Short story from each student's experience.

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Graphic Design

Objective(s):

Procedure:	Resources and Materials:
Pre:	
Discuss aspects of good design for a stationery letterhead for a specific company.	Good and bad examples of letterheads from various local businesses, banks, etc.
Post:	
Design a letterhead in pen and ink or silk screen.	Field trip to American Electrical Industries

Evaluation:
Student project: letterhead design

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Fashion Design

Objective(s):

Procedure:

Pre:

Collect sketches of good fashion design.
Films of clothing design and construction.

Post:

Have students design original fashions in pen and ink.

Resources and Materials:

Magazines, Vogue, Harper's Bazaar, Gentleman's Quarterly

Film, "Who Makes Your Clothes" by Union Label Co., 22 W. 38th St., New York, NY 10018
"Quality at Your Feet" by Correll Communications Co., 5316 Pershing Avenue, St. Louis, MO 63112
Field trip to Town & Country Shoes and Lamy Manufacturing Co.

Evaluation:
Student project: 5 fashion design sketches

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Industrial Design

Objective(s):

Procedure:

Pre:

Discuss elements of good industrial design.

Post: Work on water color sketches improving existing plant building externally and internally.

Resources and Materials:

"What Do You Mean by Design" film by National Gallery of Art, Extension Service, Washington, DC 20565

Field trip to American Electrical Industries

Evaluation:
Water color sketches

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Design

Objective(s):

Procedure:	Resources and Materials:
Pre:	
Brief history of American design a. magazines b. slides c. field trips	Magazine, Art & Man (Shaker design) Slides: "Shaker Design Furniture, Costumer, and Textiles" by National Gallery of Art, Extension Service, Washington, DC 20565 Field trip to Lamy Manufacturing Company
Post:	
Use Levi brand patch or part of jeans and combine with other memorabilia of past American design, forming into a textile collage.	

Evaluation:

Test over history of American design. Project: collage.

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Poster Design

Objective(s):

Procedure:

Pre:

Discuss lettering layout for safety poster.

Review art elements, color, design, etc.

Draw sketches while in factory, observing specific safety needs.

Post:

Work on posters.

Resources and Materials:

Speedball Lettering Manual

Field trip to Rival Manufacturing Company

Evaluation:

Block lettering for practice. Project: safety poster. (Give to company)

Comments on use:

Sharon Bozarth

Subject Area(s) Art

Unit(s) Photography

Objective(s):

Procedure:

Pre:

Determine objectives of photography as a means of communication for business.

Plan as a class to make a movie or slides which describe or "sell" a local company.

Resources and Materials:

Film, "Movies Move People" by Eastman Kodak Company, A-V Department, 343 State St., Rochester, NY 14650

Evaluation:

Test over objectives of photography as communication. Class project: movie or slides

Comments on use:

Sharon Bozarth

Subject Area(s) General Business

Unit(s) Choosing a Career

Objective(s):

Procedure:	Resources and Materials:
Show film "World of Work"	Guidance Association Film Counselor Films, Inc. Philadelphia, PA
Use some filmstrips.	Office Worker Series (filmstrips and cassettes) The Office Worker--Getting Along The Office The Way You Look Using the Telephone Filing
	Career Education Series; An Introduction to Careers--Factory Jobs, More Factory Jobs
	The above available from Interpretive Education, 400 Bryant St., Kalamazoo, MI 49001
Obtain copies of Popeye comic books telling about careers. Be sure to include "Popeye, Business and Office careers." Make a browsing table containing these and other pieces of literature on various jobs.	King Features, 235 E. 45th St., New York, NY 10017
Prepare a list of jobs, classifying them as skilled, semi-skilled and unskilled.	General knowledge, above films and filmstrips.

Evaluation: Student will get an overall picture of jobs available. Student will begin to see there are many kinds of jobs available in an office and learn a few of the requirements and talents of a good office worker. Acquaint students with the kind of jobs available in factories. Acquaint students with various job opportunities. Students will realize different jobs require different kinds of training.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Choosing a Career

Objective(s):

Procedure:	Resources and Materials:
Have student make a list of their qualifications for entering the working or business world.	Field trip, office resource person
Prepare a resume for yourself, following some examples supplied by the teacher.	Typewriting book, office practice book, etc.
Make a list of general rules to follow in dressing neatly and conservatively.	Filmstrip listed in pre-field trip activities, text, observation on field trip.
List some occupations you (the student) may enter.	Field trip, general knowledge
Of all the jobs you saw being performed, choose the one you think you would like best. Write a paragraph about why you chose this particular job.	Field trip
Explain and discuss the do's and don't's of getting along with others on the job.	Resource person Field trip
Choose a career you think you would like for your life's work. Write a report containing the following, plus any other material you think would be interesting or helpful. a. List your particular qualifications for this job. b. Write on "Why this Career Appeals to Me." c. Requirements of this job. d. Write on "Things I Dislike about this Career"	

Evaluation: Student will become aware of careers available to fit their qualifications and other qualifications they must acquire. Student will become aware of some of the procedures followed to obtain a job. Student will be more aware of stated and unstated dress codes. Student will begin to think about jobs available to him. Student will begin to think about characteristics of jobs that are appealing to him. Student will think about personal qualifications helpful to holding a job.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) ____________

Unit(s) Choosing a Career (con't)

Objective(s):

Procedure:	Resources and Materials:
e. How to get this job f. Education needed or helpful g. Possibility for advancement after I obtain the job. Also collect information about this career. Write for literature, pamphlets, etc., any information about career. This might be a continuing project, covering an entire quarter or semester as collection of related materials is time consuming.	Field trip, resource person, library, newspaper, magazines
Make a survey of part-time jobs held by members of your class. Put this information in graph or chart form.	Class discussion or a survey sheet
Prepare a graph of the salary ranges of the part-time jobs.	Class survey sheet
Write an essay on "Extra-Curricular Activities and Hobbies and Their Value in Future Careers."	General knowledge, library
Collect application forms from personnel offices. Duplicate a few and have students fill out the forms.	Personnel offices

Evaluation: Student will become more knowledgeable about careers in which they are interested. Student will become aware of the types of part-time jobs his classmates perform. Student learns type of work and place of work may have varying pay scales. Students realize these activities have a future value. Students learn to read and follow instructions-not teacher-made.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Workman's Compensation--Job Opportunities

Objective(s):

Procedure:

Find out the minimum employment laws and wages in your state. Also what are the laws for employing minors.

Find out which occupations offer the greatest opportunities in the area you live based on report trends.

Resources and Materials:

State commission
Text
U. S. Census Reports

Evaluation:

Knowledge of employment laws. Student will have a knowledge of which jobs offer the greatest opportunities in their area.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Packaging - Pre-Field Trip

Objective(s):

Procedure:

Study this function of business. Discuss suitability of packages, quality of products used, appearance, cost, etc. Bring packages or containers to class to see and discuss.

Collect packages or containers that lead the consumer to believe he is getting more for his money.

Use film "What's in a Package?"

Resources and Materials:

Text
Have students bring from home.
Pictures in advertisements will suffice.
National Association of Manufactures
Address request to:
Modern Talking Picture Service
2323 New Hyde Park Road
New Hyde Park, NY 11040

Evaluation:
Student becomes aware of this important function of business. Student will realize one of the techniques of salesmanship.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Post-Field Trip Activities

Objective(s):

Procedure:	Resources and Materials:
From observation during field trip, discuss a. machinery used b. storage of containers c. attractiveness, practicality, conservativeness, etc.	Field trip
Find out the cost of packaging of a particular item in relation to the other production costs. Make a circle graph showing the various costs of producing the article.	Resource person Field trip
Measure some of the larger cartons. Use the Official Postal Guide to see if the articles manufactured are considered mailable, can they be mailed overseas, what is the cheapest way to send, etc.	Official Postal Guide Field trip or collected cartons
Weigh some of the manufactured articles in their cartons. Figure out how much it would cost to mail this item to a given destination.	Field trip or collected packaged articles Official Postal Guide

Evaluation:
Student will become aware of importance of suitable packaging. Student will become aware of the many costs of producing manufactured articles. Student will learn what type and size of packages one can mail. Student will acquire knowledge about the cost of sending these articles by mail.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Safety - Pre-field Trip

Objective(s):

Procedure:	Resources and Materials:
Discuss safety regulations necessary in a factory.	Resource person Text
Use a film showing safety practices.	"Knowing's Not Enough" U. S. Steel Corp. or "The Handtrap Test" U. S. Steel Corp. Chicago Film Center 208 S. LaSalle Street Chicago, IL 60690 "The Memory of Who I Am" Western Electric Co. Motion Picture Bureau 195 Broadway--Room 1626 New York, NY 10007
Remind students to look for any reminders or evidences of safety rules or practices while on field trip.	Field trip

Evaluation:

Help student realize the many safety rules and aids a business uses. Make student aware that safety regulations are necessary in factories.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Post-Field Trip

Objective(s):

Procedure:	Resources and Materials:
Write for federal safety regulations of factories.	Department of Labor, Washington, DC
Prepare a report on OSHA.	Library, field trip
Make a list of Do's and Don't's for workers at American Electrical Industries.	Field trip
Have students make posters showing safety practices observed at American Electrical Industries.	Field trip
Have students make safety cartoons that might be used in a publication distributed to employees at American Electrical Industries.	Field trip

Evaluation: Student becomes aware that federal safety rules are necessary. Student becomes aware of need for many safety regulations in factories. Student becomes aware of the need to remind workers of the safety regulations. Student becomes aware that the workers need to be reminded in many ways of the necessity for safety rules.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Conservation

Objective(s):

Procedure:	Resources and Materials:
Study recycling of waste materials or by-products of manufacturing. Denim scraps are sent to paper mills.	Text Encyclopedias Resource person Field trip
Discuss "efficiency"--in use of time--in individual jobs and in industry as a whole. Have student look for any evidences of "efficiency" in practice at Lamy's during field trip.	Field trip, resource person Films: "Getting More Out of a Minute" Kearney and Trecker Corp.; "This is Automation" Amalgamated Meat Cutters and Butcher Workers of North America, Department of Education, 2800 N. Sheridan Road, Chicago, IL
Assign a panel discussion on wages--hourly wage, piece work, overtime, salary advantages and disadvantages of being paid each way.	Resource person, text, library resources

Evaluation: Student will realize that very little is actual waste. The waste of one industry is the raw material of another. Student will realize time is valuable in industry--even 1/100 of a second. Create an awareness of the many ways wages are paid.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Natural Resources

Objective(s):

Procedure:

Prepare a bulletin board of pictures of raw materials used in any way in the factory.

Prepare job cards--Some day or week when you have several small jobs such as filling out the workbook, working sets or pages of problems, etc. make up a job card for the day's or week's work. Number of points could be grade. Larger jobs would have more points (higher pay).

Resources and Materials:

Magazines
Newspapers

Field trip

Evaluation: Student will become aware of the many natural resources used in one factory. Student will see that jobs completed satisfactorily is the basis for pay in the factory as in school.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Interviews

Objective(s):

Procedure:	Resources and Materials:
Develop a list of questions that might be asked on an interview.	Resource person
Develop a list of Do's and Don't's when one goes for an interview.	Resource person
Role play an interview using the personnel manager as the person doing the interviewing.	Personnel manager
Role play an interview using the teacher as person doing the interviewing.	
Have students role play interviews, changing the questions asked to fit specific jobs the particular student was interested in or had observed on the field trip.	Field trip

Evaluation: Student will develop an awareness of the importance of skills and appearance. Students will get an opportunity to see an actual interview. Student will begin to realize many skills are necessary for different types of jobs.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Labor Unions

Objective(s):

Procedure:	Resources and Materials:
Study labor unions. Discuss.	Text
Visit labor unions active in your town.	City directory Telephone directory
Develop a vocabulary of terms relating to labor unions. Examples: closed shop, collective bargaining, strikes, sick-in, picketing, etc.	Text, dictionary, encyclopedia
Using labor vocabulary, have students make crossword puzzles or "Find the Word" puzzles. For "Find the Word" puzzles, provide students with paper ruled with squared grids (about 25 spaces).	
Study about and have class discussion on fringe benefits.	Text

Evaluation: Student will become aware of the importance of labor unions to workers. Student will use reference books to become better acquainted with the town. Student builds a working vocabulary of terms used in news, business, etc. Students will become more aware of the usual fringe benefits and have more questions for field trip.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Labor Unions

Objective(s):

Procedure:	Resources and Materials:
Appoint a student to find out whether a company is a member of a union, which union, number of members of the union in your town, other companies or factories belonging to same union, etc. Report findings to class.	Telephone call to factory or labor union office
List fringe benefits offered by factory. Also list other benefits offered by other factories.	Field trip, text, library
Watch newspapers or periodicals for current events relating to labor or labor problems. Make a notebook of the articles, using personal comments to relate them to a particular industry or text material.	Newspapers, periodicals
Watch newspapers or periodicals for current events relating to labor. Have a "Sharing Day" for current events.	
Have resource person visit your class to discuss fringe benefits offered by factory.	Resource person
Have resource person explain "bidding" for a particular job. Discuss when advantageous or when not.	Resource person
Have students write skits using possible grievances workers might have. Present the skits the following day.	Field trip

Evaluation: Student will become better acquainted with own town. Student learns about working conditions. Develops an awareness that this is a current topic of importance in the news. Newspapers and periodicals are an important source of information. Student learns about working conditions.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Post-Field Trip--American Electrical Industries

Objective(s):

Procedure:	Resources and Materials:
Problems:	
The reels of rod aluminum weigh 4,000 pounds. Find the cost of a reel if the cost to American Electrical Industries is $.38 5/6 per pound.	Field trip
There are 200 factory employees at American Electrical Industries. Three of these are women. What percent is this of the total number of employees?	Field trip
According to the pay grade scale, an employee would receive a monthly salary of $650. However, because of the arrangement of shifts to keep the machinery in constant operation, the employees actually work 21 days a month. As this is an extra day, and sometimes Sunday, the employee actually receives 12 1/2 percent more pay, plus $18 because of Sunday work hours. Figure his actual salary.	Field trip
Suppose the worker was on pay grade 1 receiving a salary of $550. What would be the amount of his actual salary?	

Evaluation: Student will be able to figure costs involving decimals and fractions. Student will be able to work simple percentage problems. Student will be able to figure actual pay.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Noise Pollution

Objective(s):

Procedure:	Resources and Materials:
Factories can be noisy places. At one time, the noise pollution was measured at 100 decibels. Now it is about 88 decibels. What percent decrease was this?	Field trip
Find out ways factories reduce the amount of noise.	Field trip Resource person
List as many safety precautions as you can that were in evidence at American Electrical Industries. Examples: safety glasses, safety shoes (steel toes), ear plugs, etc.	Field trip
On a map of the U. S. locate areas of bauxite mines.	Encyclopedia

Evaluation: Student will be able to figure percent of decrease. Student will be aware of some of the problems of industry. Student will realize the many ways industry tries to protect workers. Learn location of raw materials.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Time Cards and Time Clock

Objective(s):

Procedure:

Duplicate sample time cards. Have each student fill out a card for a day's work. Encourage some variation, such as overtime, hourly wage, portion of a day sick leave, etc. Then duplicate these and cut them apart as individual cards. Have students figure the workers wage for the day and the total daily payroll. Then have them file the cards in alphabetic order before handing them in.

Prepare a time clock simulation with "in" and "out" boards and time cards. Figure out a pay scale per hour or some reasonable portion thereof. Have students keep these daily for the duration of a practice set and figure out how much their salary would have been if they would have been on a payroll. Have students punch in and out by moving their cards from one board to the other.

Resources and Materials:

Field trip
Sample time cards may be found in consumer math workbooks or bookkeeping workshops.

Evaluation:

Student will learn some of the bookkeeping chores and get practice in alphabetic filing.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) Bulletin boards and posters

Objective(s):

Procedure:	Resources and Materials:
Find pictures of persons performing factory jobs. Try to include all kinds of jobs necessary at the factory--custodial, nurse, supervisory, clerical, maintenance, etc.	Magazines, newspapers
Have students make a poster of products manufactured by the company.	Magazines, newspapers
Have students think up slogans the company might use to sell the items manufactured.	Field trip

Evaluation:

A bulletin of factory jobs and posters. Students will be aware of one of the areas of advertising.

Comments on use:

Ruby Schondelmeyer

Subject Area(s) General Business

Unit(s) General

Objective(s):

Procedure:	Resources and Materials:
Write a thank you note for the class to the guide of your field trip. Discuss the factory in terms of cleanliness--exterior and interior, attractiveness, lighting, arrangement, location, and job opportunities. Using the number of employees at the plant, make a circle graph showing the percent of clerical workers.	Field trip

Evaluation:

Practice in letter writing. Constructive criticism. Graph and practice in percentages.

Comments on use:

Ruby Schondelmeyer

CRITERIA FOR USING THE COMMUNITY RESOURCES

A. Using the resources of the community as a source of learning experiences depends upon what type of experience is most appropriate at the time in terms of desirable learnings.

   1. Often reading books, student discussion, laboratory time or lectures represent efficient and effective forms of learning experiences.

   2. The above experiences can be sterile and may not result in effective learning. Community resources frequently provides a type of motivation that is of great value.

B. The community should be used as a learning laboratory only when the time is adequate to permit pre-planning and post-evaluation.

   1. A considerable amount of time should be spent pre-planning all field trips. (A poorly planned field trip may serve no practical learning experience other than the fun the student has of being away from school.

   2. The teachers and pupils should cooperatively establish the values to be gained.

   3. Attention should be given to the important things that pupils should look for as well as questions they might ask.

   4. Post-trip evaluation should be made to determine if objectives were met.

C. The group should be kept small. Teachers aides and parental assistance could be utilized to achieve small group learning experiences.

D. Field trips are not always necessary. Other time resource speakers may be brought to the classroom.

E. Comply with your school districts policy statement concerning the utilization of community resources.

EDUCATIONAL TRIPS

The school-sponsored trip is an activity that can contribute to the educational growth of all students. The student's daily program can be enriched by trips into the community. Then properly planned and supervised, educational trips provide excellent opportunities to aid in the total growth of the individual.

Suggestions to consider when taking an educational trip:

1. Educational trips should be an outgrowth of the curriculum contributing to the total education of the child.
2. The sponsoring group should consult with the principal's office at least two weeks prior to the trip. An outline including specific arrangements to be given to the principal prior to the trip.
3. Teachers should familiarize themselves with the legal responsibilities involved in the trip.
4. Time of departure, arrival, and return should definitely be determined prior to the trip.
5. Printed outlines of policies and regulations should be issued to each pupil, with one copy being signed by the pupil and parents and returned to the principal's office prior to the trip.
6. At least one teacher per 20 students with suggestions that a parent be invited if additional supervision is needed for the group.
7. Letters of appreciations should be written to the host within one week following the trip.
8. Evaluation of the trip should be made by students and teachers to determine its worth. A report will be filed with the principal's office for his evaluation.

FIELD TRIP

Suggested Guide for Employers To Use in Discussing Their Business or Organization Structure To a Group of Students

I. Work Force Employed

- A. Number of full-time workers
- B. Number of part-time workers
- C. Required hours of employment per day
- D. Minimum age requirement
- E. Days per week of employment

II. Requirements and Training

- A. Advanced programs offered through your company
- B. Minimum education or vocational requirements for entry level employment in your company
- C. Physical requirements
- D. Other requirements--i.e., health certificate, employment test
- E. Uniforms required by the company
- F. Tools--equipment or special clothing that must be provided by the employee

III. Promotional Opportunities

- A. Methods of Promotion
  1. Length of time
  2. Union or senority system
  3. Special test
  4. Abilities

- B. Chances of promotion within the company

IV. Advantages of the different types of employment within your organization

V. Disadvantages of the different types of employment within your organization

STUDY OF LOCAL OCCUPATIONS THROUGH FIELD TRIPS

1. Write letters asking permission to tour a plant.
2. Review before each trip suggestions for acceptable behavior and what to observe.
3. Hold a class discussion on what to observe with such questions as these in mind:
    (1) Would I have what it takes to do that job?
    (2) Would it meet my needs?
    (3) Would I enjoy doing that job?
4. Hold a panel discussion on advantages and disadvantages of work in this particular occupation.
5. Have a teacher give a short test on information brought out during the question period on the day following the tour.
6. Have a news release prepared by a committee after each field trip.
7. Send a letter of thanks from the class to the guide of the plant toured.
8. Obtain answers to the following questions from proper resource: employees, personnel department, person conducting tour:
    (1) What educational background did the person have to get the job?
    (2) What responsibility does each employee have to his respective department.
    (3) What are the fringe benefits?
    (4) What is the rate of pay determined?
    (5) What are the working conditions?
    (6) What are some of the operational aspects of the store or industry?

Note: These questions are suggestions as to what type of information is desired. It is obvious that you can add to or modify the list. It is recommended that one class period be devoted to planning the field trip.

It is recommended that one class period be devoted to an evaluation or discussion of what was learned from the field trip. (What are you going to talk about when you come back?

Discussion:

1. What are you going to try to learn?
2. Ask students what they want to learn?
3. Have an objective of what you plan to do with the information you obtain.

HOW TO GET THE MOST FROM A LEARNING EXPERIENCE OUTSIDE OF THE CLASSROOM . . .

WHY SHOULD YOU GO ON A FIELD TRIP?

To be worth the time you spend, a field trip must meet a specific need of the group. It can stimulate an activity, help in the search for more information, or pull together diverse activities of a class into a unifying whole.

Field trips can help your group:

1. Add to and clarify information by seeing and feeling things you read and talk about.
2. Learn to interview workers and observe how people work together.
3. See how adults carry out their responsibilities.
4. Correlate skills and other curricular areas with experience in meaningful situations.
5. Give children an opportunity to work together outside the classroom, to meet friends in a different atmosphere, to practice skills in human relations in real settings.

WHAT KINDS OF FIELD TRIPS BEST SUIT YOUR NEEDS?

A field trip may be:

1. Within the school itself to get acquainted with the building, the grounds, and the personnel.
2. In the school neighborhood to sharpen observation of the child's immediate environment.
3. To another school to exchange experiences or to introduce a group to another school situation.
4. Outside of his immediate school neighborhood to explore an area of interest in a more distant part of the city or its surrounding area.

Field trips might be suggested to small groups or individuals for exploration on their own time. This may be the kind of suggestion which leads children and their families to explore an area of interest related to a topic of discussion in the classroom. A new interest may develop into a new topic of study for the class.

HOW TO PREPARE FOR A FIELD TRIP

The following are suggestions of things to do to get ready. Each group will need to work out its own procedures depending upon the needs and interest of the group. However, there are some areas of definite responsibility.

The teacher should be responsible for:

1. Guiding the choice of field trip and selecting the time at which the children will profit most by the experiences offered by the trip.

2. Investigating the situation, if possible, taking the trip in advance, to become familiar with the place to be visited, and things to be seen on the way to and from the place to be visited.

3. Obtaining permission for the trip from:

   (a) The principal before discussing it with the group.
   (b) The person in charge of the place to be visited.
   (c) The parents of the children.

Much of the field trip experience can be cooperatively planned together. A teacher and class can:

1. List the things they expect to see and the questions they would like to have answered. Children may decide who will be responsible for getting answers to their questions.

2. Gather information before the trip using books and audiovisual materials.

3. Discuss every detail of the trip:

   (a) Time--Date, hour of departure, time to be spent on the trip.
   (b) Transportation--how the group will travel and the safety rules to be observed.
   (c) Group needs--social responsibilities of each individual as a member of the group, the organization of the group enroute and while on the trip, the possible need for members of the school patrol.
   (d) Person needs--type of clothing needed, need for lunch, special equipment or tools.

HOW DO YOU USE YOUR EXPERIENCE WHEN YOU RETURN TO THE CLASSROOM

The learning opportunities opened to the group as a result of a field trip are limited only by the group's capacity to learn, the sensitivity of the teacher, and the time available. The teacher and the group should evaluate the trip to:

1. See if questions were answered.
2. Decide if the plans they made were satisfactory.
3. Note progress of class thinking and discuss energy to be applied to further work.

The group will probably want to do some of the following in order to build effective learning experiences.

1. Gather more information to answer new questions that arose as a result of the new experience.
    - (a) Review some of the materials used and searched for.
    - (b) Look up related articles in books at school, at home, and at the public library.
2. Use the experience to correlate the classroom activities with various curriculum areas--to make learning visible.
    - (a) Write thank you letters, letters for additional information, stories, poems, reports, booklets.
    - (b) Organize reports for the class, for other groups in the school, for parents.
    - (c) Create songs and dramatic plays.
    - (d) Make charts, diagrams, murals, dioramas, materials for the opaque projector, illustrations for booklets.

Most of all, the teacher will want to make use of the children's increased interests. The quality of living in the classroom can be improved if enthusiasm for life-centered activities is real.

FIELD TRIP OBSERVATION SHEET

Field trip to: ______________________________

Occupation(s) observed: ______________________________

____

1. What tasks were being performed? What other duties are involved in this type of work? ______________________________

____

____

2. What equipment, materials, tools, and machines were used in this type of work? ______________________________

____

____

3. What are the working hours? ______________________________

4. Did the workers stand or sit? ______________________________

5. Were there any hazards to health or safety of a worker? ____________
If there were hazards, what were they? ______________________________

____

6. What general education was required for the occupation? ____________

____

7. What special training or education was required? ____________

____

8. What job experience was needed to start in this career? ____________

____

9. What was the average annual income for a beginning worker? ____________

10. How does this occupation help the people in the community? ____________

____

11. What personality traits would be most desirable for this career? ________

____

INTERVIEW FORM

Person interviewed: ____________________

Occupation: ____________________

1. Why did you choose this occupation? ____________________

____

2. What special education or training did you need to enter this occupation?

____

3. Did you take a special examination or did you need a license before starting this occupation? ____________________

4. Did you need to purchase special equipment for your occupation when you started work? ________ What equipment or tools do you use? ____________________

____

5. What are your duties during a typical day? ____________________

____

6. What hours do you work each day? How many days of the week do you work?

____

7. What personality traits do you feel a person should have in your occupation? ____________________

8. What is the average salary for a beginner in this occupation? ____________________

____

9. What do you feel are the advantages and disadvantages of your occupation?

____

____

SUGGESTED GUIDELINES FOR A RESOURCE PERSON

Thank you very much for your willingness to participate in our program. Without your cooperation this phase of our program could not exist.

The objective of these sessions is not to get students to make career choices, but rather to help junior high students realize that everyone works, that all useful work is honorable. We hope to acquaint them with the wide variety of occupations that exist and make their present schooling more relevant to their future.

Your company or business may have some materials they would furnish for you to bring along, perhaps some pamphlets. You might check with your public relations office. Please bring your tools or whatever you work with. Certainly, if you wear a uniform or special clothing of any kind (welding hood?), bring or wear it if you can. Here are the kinds of things we would like to hear about:

--What is your job title or description?
--Briefly describe what you do.
--What aptitudes or skills are important for your job?
--Do you have to deal with the public? If so, would you care to comment on this?
--If you are separated from people most of the time, working with things, how do you feel about that? Do you prefer not having to deal with the public or fellow workers?
--What do you consider the best points of your job? the worst?
--Is your job personally rewarding and fulfilling? Do you enjoy going to work? Do you recommend it as one of the alternatives students should consider?
--You may want to touch upon the financial aspect. Do you consider the pay to be adequate, very good, unsatisfactory?
--What is the outlook? Will this type of employment exist when these students enter the world of work?
--What changes in equipment, automation, personnel, training requirements have you experienced in the time you have been in this field?
--What training is required? (High school? Trade school? College? Apprenticeship? Graduate degrees?)
--Is the field difficult to enter? (Union membership, professional school entrance quotas, etc.)
--How does this type of career relate to what these students do now in school?
--General information on working conditions, bosses, employeets, etc.

SUGGESTED GUIDELINES FOR THE TEACHER

After scheduling the speaker, date and time, the teacher should:

A. Supply the resource speaker with the following information about the class, grade level, or ability levels, group interests and educational goals.

B. Ask the speaker to encourage the students to stay in school and to stress the importance of a high school diploma.

C. State total time available

  1. Tell the speaker how long he may talk to the class.

  2. Request time for a question and answer period.

D. Encourage the speaker to bring any large pictures or displays that may be suitable for illustrative purposes.

E. Contact the speaker in advance to see if he will require any visual aid equipment or supplies from the teacher or class.

F. Ask the speaker to cover (as it applies to his occupation)

  1. Requirements of this type of work

  2. Hazards of this type of work (heat, color, noice)

  3. Benefits: Salary range hours, vacations

  4. Types of occupations which may develop in this industry

  5. Attendance

  6. Training and education needed

  7. What special satisfactions to be derived from this occupational area

  8. Explain equipment used

GUEST SPEAKER AND FIELD TRIP SITE LISTING

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Adco	900 W. Main Sedalia, MO	Dr. Alexander	826-3300	Yes	1-6	9-12	No
Allstate Insurance Co.	4800 E. 63rd Kansas City, MO	Mr. John Irish	333-6800	Yes	20	11-16	No
American Electrical Industries	Highway 50 Sedalia, MO	Mr. Russ Woodyard	827-1712	Yes	30	6-12	Yes
Archias Floral Co.	4th & Park Sedalia, MO	Mr. Don King	826-4000	Yes	20	K-12	Yes
Artist	203 N. Jefferson Sedalia, MO	Ms. Thelma Hansen	886-8464	No	0	7-12	Yes
Attorney at Law	Cole Camp, MO	Mr. Pete Stelling	668-4858	No	0	0	Yes
Attorney at Law	Warsaw, MO	Mr. Edwin F. Brady	438-5116	Yes	4-5	9-12	Yes
Attorney at Law	Farmer's Savings Bank Marshall, MO	Mr. Larry McClure	886-6986	No	0	7-12	Yes
Ault's Skelly Station	1570 S. Kentucky Marshall, MO	Mr. Bob Ault	886-6792	No	0	7-12	No
B & E Market	1701 S. Kentucky Marshall, MO	Mr. Jim Dick	886-2188	Yes	30	3-12	No
Banges	78 S. Jefferson Marshall, MO	Ms. Dolly Kiser	886-3716	No	0	7-12	Yes
Banquet Foods	253 W. Marion St. Marshall, MO	Mr. Caton Martin	886-3301	Yes	20	4-9	Possibly
Benton County Enterprise	Warsaw, MO	Mr. Mahlon White	438-6312	Yes	4-5	9-12	Possibly
Benton County R-I School	Cole Camp, MO	Mr. Vergil Oglevie	668-4427	No	0	0	Possibly

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Benton County R-IX	Warsaw, MO	Dr. John Boise	438-7351	No	0	8-10	Yes
Benton County Sheriff's Dept.	Warsaw, MO	Mr. Robert Breshears	438-5252	Yes	3-6	9-10	Yes
Binghams Super Saver	La Monte, MO	Mrs. Bingham	347-5426	No	0	0	No
Body Shop	Cole Camp, MO	Mr. David Luetjen	665-3155	Yes	2-4	9-10	No
Bohling Grocery	Cole Camp, MO	Mr. E. G. Bohling		No	0	0	Possibly
Boonslick Regional Library	Sixth & Lamine Sedalia, MO	Ms. V. Corley	826-6195	Yes	20	K-9	Possibly
Borchers & Heimsoth	Cole Camp, MO	Mr. Ervin Borchers	668-4923	No	0	0	No
Bothwell Hospital Physical Therapy	Sedalia, MO	Ms. Mevin Almquist	826-8833	Yes	7-15	7-12	Yes
Bothwell Hospital	Sedalia, MO	Ms. Marie Nicholson	826-8833	Yes	20	12-16	No
Breech Academy - TWA	6300 Lamar Avenue Mission, KS	Ms. Mickey Holiday	842-4000	Yes	20	11-16	Yes
Brick Mason	RFD 3 Warsaw, MO	Mr. Lee Slavens	438-5360	No	0	0	Possibly
Broadway Car Wash	310 W. Broadway Sedalia, MO	Mr. Dale Arms	826-0375	Yes	25-30	1-12	No
Broadway Lanes, Inc.	2119 W. Broadway Sedalia, MO	Ms. Edith Simons	827-0404	Yes	Large	K-14	Possibly
Brown, McCloskey, Buckley	309 E. 5th St. Sedalia, MO	Ms. Mabel Glenn	826-7373	No	0	0	No
Business Mens Assurance	BMS Building Kansas City, MO	Ms. Almeta Wilcher	753-8000	Yes	20	11-16	No

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
C-B Shop	Cole Camp, MO	Mr. Dave Wordeman		Yes	4	9-12	No
C. W. Flower	219 S. Ohio Sedalia, MO	Mrs. Austin	826-3200	Yes	15-20	11-16	Yes
Cablevision, Inc.	600 S. Osage Sedalia, MO	Mr. Lynn Harrison	826-0933	Yes	20	5-9	Possibly
Cargill Incorporated	Marshall, MO	Mr. Jack Hartwick	886-7473	Yes	20-25	9	Possibly
Cargill Nutrena Feeds	Smithton, MO	Mr. Gene Hudiburg	343-5319	Yes	10	7-12	Yes
Cash U. S. Super	Cole Camp, MO	Mr. Jim Cash	668-3700	Possibly	0	0	No
City Offices	214 N. Lafayette Marshall, MO	Mr. Ron Collins	886-2226	No	0	7-12	Yes
Classic Studio	6th & Kentucky Sedalia, MO	Mr. Ed Brummett	826-8888	Yes	5-10	7-12	Yes
Clay Mead Furniture	Highway 65 Marshall, MO	Ms. Kay Perkins	886-5354	No	0	7-12	Yes
Coffman's Marina	Highway 65 South Sedalia, MO	Mr. John Smith	827-3692	Yes	1-6	9-12	No
Commerce Bank	10th & Walnut Kansas City, MO	Mr. John Wells	234-2000	Yes	20	11-16	No
Consumers Supermarket	Hancock & Broadway Sedalia, MO	Mr. Bill Smillie	827-3190	Yes	15	K-12	Yes
Courts Lawn and Garden	Marshall, MO	Mr. Delford Thompson	886-5000	No	0	7-12	Yes
Creasy's Insurance Agency	Warsaw, MO	Mr. Gordon Creasy	438-5621	No	0	0	Yes
Dala's Boutique	Tipton, MO	Ms. Dala Yantz	433-2626	No	0	0	Yes
Day Care	321 W. Second Sedalia, MO	Mrs. Zimmerschied	826-5040	Yes	1 a day	0	Yes

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
DeKalb Ag. Research	Marshall, MO	Mr. Don Wert	886-7438	Yes	10-40	5-9	Possibly
DeLong Dry Goods	Warsaw, MO	Mrs. DeLong	438-5307	No	0	0	Possibly
Deluxe Cafe	Cole Camp, MO	Ms. Marie Musser	668-4521	Yes	2-4	9-10	Yes
Democrat News	Marshall, MO	Mr. Jerry Arnett	886-2233	Yes	25	7-9	Yes
Dentist	Warsaw, MO	Dr. Shepardson	438-5421	No	0	0	Possibly
Dentist	1810 W. 11th Sedalia, MO	Dr. Robert Vit	826-5445	No	0	K-12	No
Dentist	Cole Camp, MO	Dr. D. V. Reimsnitter	668-3312	Yes	4-6	9-12	Possibly
Doctor of Osteopathy	1701 S. Lafayette Sedalia, MO	Dr. Joe Bennett	826-6633	Yes	5 at a time, 40 maximum	7-12	Yes
Don's Dive Shop	3312 S. Highway 65 Sedalia, MO	Mr. Don Kabler	826-4681	No	0	8-12	Yes
Don's Welding	Highway 65 South Sedalia, MO	Mr. Don Carr	826-7310	Yes	1-10	8-12	No
Duke Manufacturing	Main & Duke Road Sedalia, MO	Mr. Ivan Stuart	827-2661	Yes	10	4-12	No
Durham Chevrolet	Warsaw, MO	Mr. Floyd Durham	438-5133	Yes	10	4-12	Yes
Eckhoff Clothing	Cole Camp, MO	Mr. Raymond Eckhoff	668-4707	Yes	4	9-12	No
Essers	18 S. Jefferson Marshall, MO	Mr. David Esser	886-2107	No	0	7-12	Yes
Estes' 66 Station	Warsaw, MO	Mr. Gary Estes	438-6022	No	0	0	Possibly
Farmer's Bank of Lincoln	Lincoln, MO	Mr. Karl Kroenke	547-3311	Yes	4-5	9-12	Possibly
Farmer's Insurance	1806 W. 11th Sedalia, MO	Mr. Newby	827-0122	Yes	1-5	9-12	Possibly

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Industrial Loan & Investment	120 W. Fifth Sedalia, MO	Mr. Firman Boul	826-4800	Yes	25	7-12	Yes
J & J's	1421 S. Limit Sedalia, MO	Mr. Jack Smith	827-2485	No	0	0	Possibly
Jack Couts' Running Quarter Horses	Mo. State Fair Grounds Sedalia, MO	Ms. Tina Brown	826-1135	Yes	5-10	K-12	No
Jim's Garden Center	1000 W. Main Sedalia, MO	Mr. James L. Foster	826-4411	Yes	15	4-9	Possibly
Bob Johnson TV & Appliance	2907 W. Broadway Sedalia, MO	Mr. Ray Thompson Mr. Paul Johnson	827-2326	Yes	15-20	7-12	Yes
KDRO Radio	West Highway 50 Sedalia, MO	Mr. Herb Brandes	826-5005	Yes	15	K-12	Possibly
Keeharts	Marshall, MO	Ms. Alice Alexander	886-5611	No	0	7-12	Yes
Kim Originals	2500 E. Broadway Sedalia, MO	Mr. Bill Cline	826-2500	Yes	15	K-12	Possibly
Kings Court	Marshall, MO	Mr. Bill Coman	886-5444	Yes	15	7-12	No
KMMO-KMFL	Highway 65 North Marshall, MO	Mr. Harold Douglas Mr. Jim Athon Mr. Jack Abdon	886-7422	No	0	7-12	Yes
KMOS TV Station	2100 W. Broadway Sedalia, MO	Mr. Stuart Gressley	826-1651	Yes	15	K-12	Yes
KSIS Radio	North 65 Highway Sedalia, MO	Mr. Carl Yates	826-1050	Yes	10	K-14	Yes
Lacuma Builders, Inc.	2800 W. Main Sedalia, MO	Mr. Bob Cook	826-0522	No	0	0	Yes

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Fire Station	211 S. Kentucky Sedalia, MO	Mr. Jabas	826-8044	Yes	1-15	0	Possibly
Flat Creek Vet. Hosp.	1701 W. Main Sedalia, MO	Dr. Peacock	827-2057	Yes	10-15	K-12	Yes
Gambles	2 S. Jefferson Marshall, MO	Mr. Norvelle Brown	886-6823	No	0	7-12	Yes
Bill Greer Body Shop	Main Street Sedalia, MO	Mr. Orval Burd	827-2162	Yes	5	10-12	No
Hallmark	25th & McGee Kansas City, MO	Ms. Rose A. Lightle	274-4667	Yes	20	11-16	Yes
Harris & Reid	Farmer's Savings Bank Marshall, MO	Mr. Mike Reid	886-5544	No	0	7-12	Yes
Heinzler Bros. Welding	Marshall, MO	Mr. Frank Heinzler	886-7775	Yes	20-25	7-9	No
Holiday Inn	32nd & Limit Sedalia, MO	Mr. Jim Grieshaber	826-6100	Yes	40-50	8-9	Possibly
Home Lumber	207 E. North Marshall, MO	Mr. Roland Wood	886-3342	No	0	7-12	Yes
Horse Racing	P.O. Box 951 Sedalia, MO	Mr. Anderson	826-7114	Yes	1-10	9-12	Possibly
Howard Construction	1509 N. Ohio Sedalia, MO	Mr. Olen Howard	826-5750	Yes	5-15	8-12	No
Hurtt's Pharmacy	504 W. 16th Sedalia, MO	Mr. Hurtt	826-2872	Yes	1-10	8-12	Possibly
IBEW Local 814 Credit Union	2111 W. Broadway Sedalia, MO	Ms. June Kuhlman	826-0814	Yes	6 at a time	8-12	Possibly
IGA	2402 W. Broadway Sedalia, MO	Mr. Ralph Huff	827-1452	Yes	25	K-12	Yes

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Lamm, Barnett, Crawford, Barnes, Fritz Law Firm	118 W. Fifth Sedalia, MO	Mr. Donald Barnes	826-5428	No	0	11-12	Yes
Lee's Archery Manufacturing	Route 2 Sedalia, MO	Mr. LeRoy Young	826-6762	Yes	20	7-16	No
Lee's Studio	20 S. Jefferson Marshall, MO	Mr. Lee Beardon	886-7313	No	0	7-12	Yes
Lifeguard	2401 W. Second Sedalia, MO	Ms. Diane Cordry	826-7719	No	1-15	8-10	Yes
Lincoln New Era Newspaper	Lincoln, MO	Mr. George Williams	547-3800	Yes	Inquire	Inquire	Possibly
Locker Plant	Hughesville, MO	Mr. Bill Wheeler	826-8630	Yes	10-15	1-12	Yes
Macy's	1034 Main Kansas City, MO	Mrs. Cullen	221-3737	Yes	20	11-16	No
Magistrate Judge--Pettis County	901 S. Vermont Sedalia, MO	Ms. Hazel Palmer	826-8816	No	0	11-12	Yes
Marshall Chamber of Commerce	214 N. Lafayette Marshall, MO	Mr. Leo Hayob	886-7464	No	0	7-12	Yes
Marshall Floral & Greenhouse	160 W. Summit Marshall, MO	Ms. Juanita Dametz	886-7177	Yes	20	7-9	Yes
Marshall Police	Arrow Street Marshall, MO	Mr. Gerald Stone	886-7411	Yes	15-20	1-12	Yes
Marshall Public Schools	565 S. Odell Marshall, MO	Dr. John Payne	886-2244	Yes	20-30	7-12	Yes
Martin Lumber	Hughesville, MO	Mr. Con Scott	826-7556	No	0	0	No
Mattingly's Variety Store	218 S. Ohio Sedalia, MO	Mr. Bill Stratton	826-5270	Yes	20	7-12	Possibly

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Merle Norman Cosmetics	120 S. Ohio Sedalia, MO	Ms. Sandra Boul	826-6430	No	0	11-16	Yes
MFA Elevator	Cole Camp, MO	Mr. Ed Schnakenberg	668-3231	Yes	6-8	9-10	Possibly
MFA Grocery	Lincoln, MO	Mr. Joe McKnight	547-3621	No	0	0	Yes
MFA Implement	Lincoln, MO	Mr. Clarence Frisch	547-3318	Yes	4	9-12	No
MFA Insurance	1817 W. Broadway Columbia, MO	Mr. Vic Ohman	445-8441	Yes	20	11-16	No
Missouri Division of E. S.	215 E. Fifth Sedalia, MO	Mr. Bill Giles	826-8184	Yes	25	11-12	Yes
Missouri Pacific Railroad	210 N. 13th St. St. Louis, MO	Mr. D. M. Tutke	314-2944	Yes	Arr.	7-12	Possibly
Missouri State Bank	917 S. Limit Sedalia, MO	Mr. William Claycomb	826-1213	Yes	20-25	4-12	Possibly
Missouri State Fair	Box 111 Sedalia, MO	Ms. Myrna Ragar	826-0570	Yes	30	3-7	Possibly
Missouri Valley College	Marshall, MO	Mr. Ed Leslie	886-6924	No	0	9-12	Yes
Model Cleaners	Warsaw, MO	Mr. Richard Kingma	438-5831	Yes	20	K-12	No
Ollison's Garage	2809 E. 12th Sedalia, MO	Mr. Keith Ollison	826-4077	No	0	0	Yes
Otten Truckline	Cole Camp, MO	Mr. Pete Otten	668-3112	No	0	0	Yes
Patricia Stephens Modeling Finishing School	4638 Nichols Parkway Kansas City, MO	Ms. Sue Peterson	531-5866	Yes	60	7-12	Yes
Pepsi-Cola Bottling Co.	Sedalia, MO	Mr. W. C. Ream	826-8144	Yes	30	4-9	Possibly

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Pettis County Ambulance	626 E. Fifth Sedalia, MO	Mr. Joe Wasson	826-5316	Yes	10-15	6-12	Possibly
Phyllis's Beauty Shop	Cole Camp, MO	Ms. Phyllis Templeton	668-3750	Yes	6	9-12	No
Pittsburgh Corning	16th & Missouri Pacific Spur Sedalia, MO	Ms. Rita Kenney	826-4660	No	0	0	No
Post Office	205 N. Lafayette Marshall, MO	Mr. Weislocker	886-6200	Yes	25	7-9	No
Post Office	405 E. Fifth Sedalia, MO	Mr. Roy Hinton	826-8887	Yes	25-30	4-9	Possibly
Quality Body Shop	501 N. Park Sedalia, MO	Mr. Bill Utz	826-2126	Yes	1-10	8-12	No
Rainbow Radio & TV	Lincoln, MO	Mr. Rainbow	547-3317	Yes	4	9-12	No
Ramada Inn	3501 W. Broadway Sedalia, MO	Mr. Darrell Olsen	826-8400	Yes	15	5-12	Possibly
Reinhart Fajen, Inc.	Warsaw, MO	Ms. Eloise Atkins	438-5111	Yes	8-10	9-12	Possibly
Rest Haven Retirement Home	1800 S. Ingram Sedalia, MO		827-0845	Yes	10	1-9	Possibly
Retail Bakery	Sixth & Ohio Sedalia, MO	Mr. Mallory	826-6920	Yes	20	K-9	Possibly
Rick's Body Shop	R. R. #2 Sedalia, MO	Mr. Rick Geer	826-1157	Yes	25-30	7-12	No
Rival Manufacturing Co.	16th & Lamine Sedalia, MO	Mr. Jim Houchen	826-6600	Yes	15	4-12	Yes

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Rival Manufacturing Co.	Miller's Park Plaza Sedalia, MO	Ms. Nyra Price	827-3860	No	0	0	Yes
Rose & Buckner	72 N. Jefferson Marshall, MO	Mr. Bob Rose	886-2002	Yes	15-20	7-12	Yes
Russell Brothers	Marshall, MO	Mr. Casey Kotowiez	886-7340	No	0	7-12	Yes
Russell Brothers	214 S. Ohio Sedalia, MO	Mr. Bob Johnson	826-5154	Yes	1-10	8-12	No
Scott's Jewelry	East Highway 7 Marshall, MO	Mr. Scott	438-5700	No	0	0	Possibly
Sears	110 W. Third Sedalia, MO	Mr. Finis Galloway	826-6500	Yes	10	7-12	Yes
Sedalia Computer Service	210 E. 7th Sedalia, MO	Mr. Larry McRoy	827-1990	Yes	10-15	9-12	Yes
Sedalia Democrat-Capital	700 S. Massachusetts Sedalia, MO	Mr. Don Keller	826-1000	Yes	15	K-16	No
Sedalia Implement Co.	2205 S. Limit Sedalia, MO	Mr. John Joy	826-0466	Yes	15-25	7-12	Yes
Sedalia Memorial Airport	East Highway 50 Sedalia, MO	Mr. James Addas	826-9796	Yes	Small	K-14	Possibly
Sedalia Police Department	3rd & Osage Sedalia, MO	Mr. Bill Miller	826-0214	Yes	10-15	1-14	Yes
Sedalia Water Department	111 W. Fourth Sedalia, MO	Mr. C. H. Taylor	826-1234	Yes	15	6-9	Possibly
Sheriff's Department	Warsaw, MO	Mr. Bob Breshears	438-5252	No	0	0	No

NAME	ADDRESS	CONTACT REPRESENTATIVE	TELEPHONE	FIELD TRIP	GROUP SIZE	GRADE LEVEL	GUEST SPEAKER
Paul Shinn Oil Company	RFD 3 Warsaw, MO	Mr. Paul Shinn	438-5013	No	0	0	No
Sho-Me Stables	State Fair Grounds Sedalia, MO	Ms. Elaine Knight	827-2243	Yes	5-10	K-12	No
Sound Shop	1716 W. Ninth Sedalia, MO	Mr. Al Reese	827-2223	Yes	20	K-12	Yes
Southwestern Bell Telephone	220 E. 5th St. Sedalia, MO	Mr. Bob Johnson	826-9800	Yes	25	K-12	Yes
Sowers' Horses	Callis Stables Sedalia, MO	Ms. Susan Sowers	827-1778	Yes	5-10	8-12	Yes
Stan's TV	P.O. Box 856, Rt. 2 Warsaw, MO	Mr. Stan Johnson	438-6859	No	1	9-10	Yes
State Fair Community College	1900 Clarendon Road Sedalia, MO	Mr. Fred Davis	826-7100	Yes Check with Betty Blackwell	5-10	9-12	Yes
State Fair Riding Academy	Route 3 Sedalia, MO	Ms. Faith Lovell	826-9767	Yes	1-5	8-12	No
T & O Phosphate	Hughesville, MO	Mr. Larry Owen	826-1813	No	0	0	No
The Craft Shop	318 S. Ohio Sedalia, MO	Mrs. Boatman	827-3041	Yes	15-20	5-12	Possibly
The Dog House	116 W. 16th Sedalia, MO	Mr. Antoine	827-1941	Yes	1-10	8-12	No
Third National Bank	301 S. Ohio Sedalia, MO	Mr. Bob McDonald	826-0611	Yes	30-40	6-9	Possibly
Town and Country Shoes	201 N. Missouri Sedalia, MO	Mr. Charles Rayl Mr. Ken Grott	826-4490	Yes	Small	K-12	Yes

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Tullis Hall Dairy Co.	541 E. Fifth Sedalia, MO	Mr. Funnell	826-3030	Yes	10	3-12	No
Tygart & Arth Body Shop	207 E. Belle Marshall, MO	Mr. Ray Arth	886-3033	Yes	25	7-8	Yes
Unitog	Warsaw, MO	Mr. Osborne McMillen	438-5117	Yes	Arr.	7-12	No
Verl's Amoco Service	1801 W. Broadway Sedalia, MO	Mr. Verl Schnepf	827-0040	Yes	1-10	8-12	No
Veterinary	Cole Camp, MO	Dr. Taylor	668-4523	No	0	0	No
Viebrocks Welding	Cole Camp, MO	Mr. Harold Viebrock	668-3233	Yes			No
Vogue Styles	22 Jefferson Marshall, MO	Mrs. Howell	886-6161	No	0	7-12	Yes
W-K Chevrolet Garage	Cole Camp, MO	Mr. Vern Dean	668-4421	Yes	4-6	9-12	Possibly
Walker Publishing Co.	2016 W. Main Sedalia, MO	Mr. Mark Kitch	826-8200	Yes	15	5-12	Yes
Warren Grocery	Green Ridge, MO	Mr. Warren	527-3317	No	0	0	No
Warsaw Auto Supply	Warsaw, MO	Mr. Stan Intelman	438-7321	Yes	Small	1-14	No
Warsaw Sewing Center	Warsaw, MO	Mr. Jerome Kel[illegible] Mr. Donald Prunty	438-6919	Yes	6	8-12	Possibly
Warsaw Veterinary Clinic	Warsaw, MO	Dr. N. V. Roff	438-7333	Yes	8	8-12	Yes
WESCEMO, Inc.	651 E. 14th Sedalia, MO	Mr. Steve Laslo	827-3760	No	0	8-12	Yes
Western Auto	Jefferson & Morgan Marshall, MO	Mr. Gerald Leach	886-6813	No	0	7-12	No
Wilken Music	Thompson Hills Sedalia, MO	Mr. Wilken	826-9356	Yes	10	4-12	Yes

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Williams Press	Cole Camp, MO	Mr. George Williams	668-4418 547-3911	Yes	4-6	9-12	Possibly
Wilson's Company, Inc.	Box 340 Marshall, MO	Mr. Don Nutten	886-5522	Possibly	12	7-12	Possibly
Wood & Huston Bank	27 North Street Marshall, MO	Mr. Mitchell	886-5575	Yes	25	7-9	Yes
Yeager's Cycle Sales	3001 S. Limit Sedalia, MO	Mr. Rick Yeager	826-2925	Yes	1-15	8-12	No
Yost Chevrolet	Odell Avenue Marshall, MO	Mr. Ken Yost	886-3348	No	0	7-12	Yes